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Review Article

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Herbal Remedy for Obesity

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ABSTRACT

We describe the epidemic of obesity in the United States: escalating rates of obesity in both adults and children, and why these qualify as an epidemic; disparities in overweight and obesity by race/ethnicity and sex, and the staggering health and economic consequences of obesity. Physical activity contributes to the epidemic as explained by new patterns of physical activity in adults and children. Changing patterns of food consumption, such as rising carbohydrate intake – particularly in the form of soda and other foods containing high fructose corn syrup – also contribute to obesity. We present as a central concept, the food environment—the contexts within which food choices are made— and its contribution to food consumption: the abundance and ubiquity of certain types of foods over others; limited food choices available in certain settings, such as schools; the market economy of the United States that exposes individuals to many marketing/advertising strategies. Advertising tailored to children plays an important role [1]

Keywords: obesity, United States, food consumption, Heart disease, *Agrotis venerabilis*

ARTICLE INFO

CONTENTS

1. Introduction	342
2. Causes.	343
3. Symptoms.	344
4. Treatment	344
5. Herbs for Obesity.	346
6. Conclusion.	348
7. References.	348

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1. Introduction

The epidemic of obesity has presented an increasing burden of illness in a young adult/adult population. More young system, economics, time and personnel as well as an increased economic burden on the larger economy and

parents are chronically ill with an impact on their children. There is an increased burden on the health care health of the population. The modules in Section 3 that follow in the Teacher's guide address specific concerns

using case-based learning to stimulate learner participation in the process. This introduction brings our salient features of the obesity epidemic setting the stage for engagement with children, their families and the problems they bring with them when "at-risk" for overweight or actually obese.

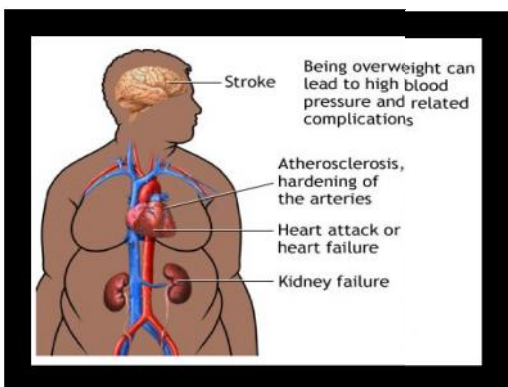


Figure 1

Prevalence: In 2000, over 15% of 6-19 year olds or almost 9 million children in the United States were overweight. This prevalence occurs across the full spectrum of ages and is similar for 12 to 19 year olds. The incidence is rising rapidly for 2 to 5 year old children among whom there were 10% whose weight was >95% for age and gender. (1). Obesity effects all children but there are disproportional effects among minority children. In 1998, 21.5 percent of African American children, 21.8 percent of Hispanic children and 12.3 percent of Caucasian children had a Body Mass Index (BMI) greater than the 95% percentile for age and gender. (2) Several tribal groups of Native American children have been particularly affected. [1]

Definition: Obesity is a complex disorder involving an excessive amount of body fat. Obesity isn't just a cosmetic concern. It increases your risk of diseases and health problems such as heart disease, diabetes and high blood pressure. [2]

2. Causes

Although there are genetic and hormonal influences on body weight, obesity occurs when you take in more calories than you burn through exercise and normal daily activities. Your body stores these excess calories as fat. Obesity usually results from a combination of causes and contributing factors, including:



Figure 2

Inactivity:

If you're not very active, you don't burn as many calories. With a sedentary lifestyle, you can easily take in more calories every day than you use through exercise and normal daily activities.

Unhealthy diet and eating habits:

Having a diet that's high in calories, lacking in fruits and vegetables, full of fast food, missing breakfast, and laden with high-calorie beverages and oversized portions all contribute to weight gain.

Pregnancy:

During pregnancy, a woman's weight necessarily increases. Some women find this weight difficult to lose after the baby is born. This weight gain may contribute to the development of obesity in women.

Lack of sleep:

Too little sleep can cause changes in hormones that increase your appetite. You may also crave foods high in calories and carbohydrates, which can contribute to weight gain.

Certain medications:

Some medications can lead to weight gain if you don't compensate through diet or activity. These medications include some antidepressants, anti-seizure medications, diabetes medications, antipsychotic medications, corticosteroids and beta blockers.

Medical problems:

Obesity can sometimes be traced to a medical cause, such as Prader-Willi syndrome, Cushing's syndrome, and other diseases and conditions. Some medical problems, such as arthritis, can lead to decreased activity, which may result in weight gain. A low metabolism is unlikely to cause obesity, as is having low thyroid function.

Complications

If you're obese, you're more likely to develop a number of potentially serious health problems, including:

- High triglycerides and low high-density lipoprotein
- (HDL) cholesterol
- Type 2 diabetes
- High blood pressure
- Heart disease
- Stroke
- Cholesterol Metabolic syndrome -a combination of high blood sugar, high blood pressure, high triglycerides and low HDL
- Cancer, including cancer of the uterus, cervix, endometrium, ovaries, breast, colon, rectum, esophagus, liver, gallbladder, pancreas, kidney and prostate
- Breathing disorders, including sleep apnea, a potentially serious sleep disorder in which breathing repeatedly stops and starts
- Gallbladder disease
- Gynecologic problems, such as infertility and irregular periods
- Erectile dysfunction and sexual health issues
- Nonalcoholic fatty liver disease, a condition in which fat builds up in the liver and can cause inflammation or scarring

- Osteoarthritis
- Skin conditions, including poor wound healing.

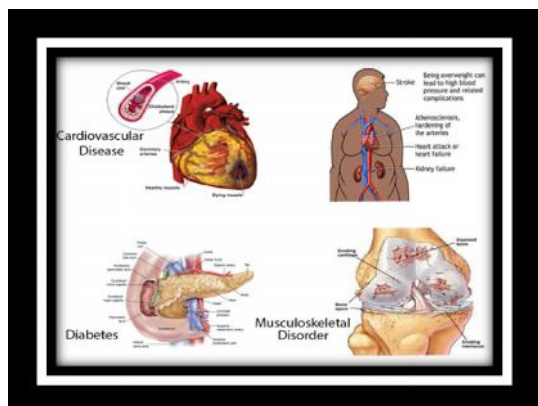


Figure 3

3. Symptoms

Obesity is likely when an individual's body mass index (BMI) is 30 or higher. Your body mass index is calculated by dividing your weight in kilograms (kg) by your height in meters (m) squared. For most people, BMI is a reasonable estimate of body fat. However, BMI doesn't directly measure body fat, so some people, such as muscular athletes, may have a BMI in the obese category even though they don't have excess body fat. Ask your health care provider if your BMI is a problem

Table 1

BMI	Weight status
Below 18.5	Underweight
18.5-24.9	Normal
25.0-29.9	Overweight
30.0-34.9	Obese (Class I)
35.0-39.9	Obese (Class II)
40.0 and higher	Extreme obesity (Class III)

Tests and diagnosis

If your BMI is in the overweight or obese range, your health care provider will typically review your health history in detail, perform a physical exam and recommend some tests. These exams and tests generally include:

Taking your health history:

Your doctor may review your weight history, weight-loss efforts, exercise habits, eating patterns, what other conditions you've had, medications, stress levels and other issues about your health. Your doctor may also review your family's health history to see if you may be predisposed to certain conditions.

Checking for other health problems:

If you have known health problems, your doctor will evaluate them. Your doctor will also check for other possible health problems in the examination and laboratory tests, such as high blood pressure and diabetes.

Calculating your BMI:

Your doctor will check your body mass index (BMI) to determine your level of obesity. This should be done at

least once a year. Your BMI also helps determine your overall health risk and what treatment may be appropriate.

Measuring your waist circumference:

Fat stored around your waist, sometimes called visceral fat or abdominal fat, and may further increase your risk of diseases such as diabetes and heart disease. Women with a waist measurement (circumference) of more than 35 inches (88 centimeters, or cm) and men with a waist measurement of more than 40 inches (102 cm) may have more health risks than do people with smaller waist measurements. Like the BMI measurement, your waist circumference should be checked at least once a year.

A general physical exam:

This includes measuring your height; checking vital signs, such as heart rate, blood pressure and temperature; listening to your heart and lungs; and examining your abdomen.

Blood tests:

What tests you have depend on your health, risk factors and any current symptoms you may be having. Tests may include a cholesterol test, liver function tests, fasting glucose, a thyroid test and others, depending on your health situation. Your doctor may also recommend certain heart tests, such as an electrocardiogram. Gathering all this information helps you and your doctor determine how much weight you need to lose and what health conditions or risks you have. And this will shape what treatment options are right for you. [4]

4. Treatment

The goal of obesity treatment is to reach and stay at a healthy weight. You may need to work with a team of health professionals- including a dietitian, behavior therapist or an obesity specialist- to help you understand and make changes in your eating and activity habits. You can start feeling better and seeing improvements in your health by just introducing better eating and activity habits. The initial goal is a modest weight loss -3 to 5 percent of your total weight. That means that if you weigh 200 pounds (91 kg) and are obese by BMI standards, you would need to lose only about 6 to 10 pounds (2.7 to 4.5 kg) for your health to begin to improve. However, the more weight you lose, the greater the benefits. All weight-loss programs require changes in your eating habits and increased physical activity. The treatment methods that are right for you depend on your level of obesity, your overall health and your willingness to participate in your weight-loss plan. Other treatment tools include:

- Dietary changes
- Exercise and activity
- Behavior change
- Prescription weight-loss medications
- Weight-loss surgery

Dietary changes

- Reducing calories and eating healthier are vital to overcoming obesity. Although you may lose weight quickly at first, slow and steady weight loss over the long term is considered the safest way to lose weight and the best way to keep it off permanently.

- Avoid drastic and unrealistic diet changes, such as crash diets, because they're unlikely to help you keep excess weight off for the long term.
- Plan to participate in a comprehensive weight-loss program for at least six months and in the maintenance phase of a program for at least a year to boost your odds of weight loss success.
- There is no best weight-loss diet. Choose one that includes healthy foods that you feel will work for you. Dietary changes to treat obesity include:
- **A reduced-calorie diet.** The key to weight loss is reducing how many calories you take in. You and your health care providers can review your typical eating and drinking habits to see how many calories you normally consume and where you can cut back. You and your doctor can decide how many calories you need to take in each day to lose weight, but a typical amount is 1,200 to 1,500 calories for women and 1,500 to 1,800 for men.
- **Feeling full on less.** The concept of energy density can help you satisfy your hunger with fewer calories. All foods have a certain number of calories within a given amount (volume). Some foods — such as desserts, candies, fats and processed foods — are high in energy density. This means that a small volume of that food has a large number of calories. In contrast, other foods, such as fruits and vegetables, have lower energy density. These foods provide a larger portion size with a fewer number of calories. By eating larger portions of foods less packed with calories, you reduce hunger pangs, take in fewer calories and feel better about your meal, which contributes to how satisfied you feel overall.
- **Adopting a healthy-eating plan:** To make your overall diet healthier, eat more plant-based foods, such as fruits, vegetables and whole-grain carbohydrates. Also emphasize lean sources of protein — such as beans, lentils and soy - and lean meats. If you like fish, try to include fish twice a week. Limit salt and added sugar. Stick with low-fat dairy products. Eat small amounts of fats, and make sure they come from heart-healthy sources, such as nuts and olive, canola, and nut oils.
- **Restricting certain foods:** Certain diets limit the amount of a particular food group, such as high-carbohydrate or full-fat foods. Ask your doctor which diet plans have been found effective and which might be helpful for you. Drinking sugar-sweetened beverages is a sure way to consume more calories than you intended, and limiting these drinks or eliminating them altogether is a good place to start cutting calories.
- **Meal replacements.** These plans suggest that you replace one or two meals with their products - such as low-calorie shakes or meal bars - and eat healthy snacks and a healthy, balanced third meal that's low in fat and calories. In the short term, this type of diet can help you lose weight. Keep in mind that these diets likely won't teach you how to

change your overall lifestyle, though, so you may have to keep this up if you want to keep your weight off.

- **Being wary of quick fixes:**

You may be tempted by fad diets that promise fast and easy weight loss. The reality, however, is that there are no magic foods or quick fixes. Fad diets may help in the short term, but the long-term results don't appear to be any better than other diets. Similarly, you may lose weight on a crash diet, but you're likely to regain it when you stop the diet. To lose weight - and keep it off - you have to adopt healthy-eating habits that you can maintain over time.

Exercise and activity

- Increased physical activity or exercise also is an essential part of obesity treatment. Most people who are able to maintain their weight loss for more than a year get regular exercise, even simply walking.
- To boost your activity level:
- **Exercise.** People who are overweight or obese need to get at least 150 minutes a week of moderate-intensity physical activity to prevent further weight gain or to maintain the loss of a modest amount of weight. To achieve more significant weight loss, you may need to exercise 300 or more minutes a week. You probably will need to gradually increase the amount you exercise as your endurance and fitness improve. To make your own exercise goal more doable, break it up into several sessions throughout the day, doing just 10 minutes at a time. Exercising with a partner can make this more fun and help you maintain your motivation.
- **Increase your daily activity:** Even though regular aerobic exercise is the most efficient way to burn calories and shed excess weight, any extra movement helps burn calories. Making simple changes throughout your day can add up to big benefits. Park farther from store entrances, rev up your household chores, garden, get up and move around periodically, and wear a pedometer to track how many steps you actually take over the course of a day.

Behavior changes

A behavior modification program can help you make lifestyle changes and lose weight and keep it off. Steps to take include examining your current habits to find out what factors, stresses or situations may have contributed to your obesity. Everyone is different and has different obstacles to managing weight, such as a lack of time to exercise or late-night eating. Tailor your behavior changes to address your individual concerns. Behavior modification, sometimes called behavior therapy, can include:

Counseling: Therapy or interventions with trained mental health or other professionals can help you address emotional and behavioral issues related to eating. Therapy can help you understand why you overeat and learn healthy ways to cope with anxiety. You can also learn how to

monitor your diet and activity, understand eating triggers, and cope with food cravings. Counseling may be available by telephone, email or Internet-based programs if travel is difficult. Therapy can take place on both an individual and group basis. More-intensive programs - those that include 12 to 26 sessions a year - may be more helpful in achieving your weight-loss goals.

Support groups:

You can find camaraderie and understanding in support groups where others share similar challenges with obesity. Check with your doctor, local hospitals or commercial weight-loss programs for support groups in your area, such as Weight Watchers. [5]

5. Herbs for Obesity

Aloe Vera (*Aloe barbadensis*): Aloe vera juice improves digestion and cleanses the digestive tract.

Astragalus (*Astragalus gummifer*): Astragalus increases energy and improves nutrient absorption.

Caution: Do not use this herb in the presence of a fever.

Bee pollen: Bee pollen stimulates the metabolism and helps to curb appetite. Take up to 1 teaspoon

Bladderwrack6 (*Fucus vesiculosus*)

Bladder wrack contains iodine, which helps to enhance thyroid function. Dosage: Take 150 milligrams at breakfast and another 150 milligrams lunch for two months.

Caution:

Check with your doctor before taking this herb if you have a thyroid disorder, high blood pressure, or heart problems. If you are allergic to shellfish and/ or sensitive to iodine, do not take this herb. Also do not take kelp and bladder wrack at the same time.

Brewer's yeast: Brewer's yeast will help to reduce various cravings for food and drink.

Chickweed (*Stellaria media*)

This herb a great folk reputation for shedding weight. You can eat it raw in salads. Alternately, you can steam it and eat it like a vegetable. For a great weight loss salad, mix chickweed, dandelion, evening primrose, stinging nettle (cooked and cooled), plantain and purslane. Add this to your regular salad.

Coconut oil

Coconut oil, extracted from coconuts, is a rich source for medium chain triglycerides. Medium chain triglycerides (MCTS) are special types of saturated fats separated out from coconut oil that range in length from six to twelve carbon chains. Unlike regular fats, MCTs do not appear to cause weight gain; they actually promote weight loss.

Stellaria media:

Chickweed

Description: Chickweed (*Stellaria media*) is a member of the Caryophyllaceae, or carnation, family. Chickweed is a European native that has naturalized throughout the world in fertile, mineral-rich soil. It thrives in shady, moist locations in gardens, near human habitations, and on the edge of woods. The herb is often found growing under the shade of oak trees. Chickweed is a persistent annual. It self-seeds and may produce as many as five generations within one season. The genus name *Stellaria* refers to chickweed's tiny, white, star-shaped flowers. The common name refers

to the herb's appeal to birds and barnyard fowl, particularly young chickens. Other common names include Indian chickweed, stitchwort, starwort, white bird's eye, chick wittles, satin flower, adder's mouth, mouse ear, starweed, passerina, tongue grass, and winter weed. Chickweed has been used for centuries. The nutritious herb was fed to caged birds and rabbits. It was also traditionally prepared as an early spring tonic, eaten fresh or steamed, to cleanse the kidneys and liver. English physician Nicholas Culpeper described chickweed as "a fine soft pleasing herb under the dominion of the Moon." Chickweed is a juicy, succulent, low-growing, and delicate herb which grows from a slender taproot. The straggly, weak stems may stretch along the ground for two feet or more forming dense mats only a few inches off the ground.

The light-green, oval, and entire leaves grow in opposite pairs about an inch apart along the smooth and branching stem. A single line of fine white hairs grows along one side or the other of the thin stems, alternating at the node of each pair of leaves. Stems are slightly swollen at the joints. Leaves appear stalkless at the growing tip but the older leaves develop stalks at least as long as the attached leaf. At night, the half-inch long leaves close in on each other to protect the developing buds. The tiny white flowers grow singly in the leaf axils of the upper leaves. The five petals are deeply incised, and smaller than the pointed green sepals. Blossoms open in the sun and close on cloudy, gray days and throughout the night hours. Minuscule seed capsules, with a barely-perceptible toothed edge, follow the blossoms. In damp weather the "teeth" swell, effectively closing the capsule to protect the ripening seed. The tiny yellow-orange seeds continue to ripen even after the herb is harvested. Chickweed self-seeds freely in cool, moist habitats. [6]

General use

The entire chickweed plant is edible. The stems and leaves are used in medicinal preparations. Herbalists, however, disagree about the medicinal potency of chickweed. One writer, a professor of pharmacognosy, dismissed chickweed as a "worthless weed" and an "ineffective herb." Other writers and herbalists praise the diminutive herb for providing "optimum nutrition" and for its "unsurpassed" ability to cool fevers and infections. The English physician Nicholas Culpeper, writing in the seventeenth century, credited chickweed as beneficial for "all pains in the body that arise of heat."

Taken as an infusion, chickweed acts internally to cool inflammation of the digestive and respiratory system. It has been used to treat bronchitis, pleurisy, colitis, gastritis, asthma, and sore throat. The herb's diuretic action helps eliminate toxins from the system and reduce retention of fluids. Chickweed contains mucilage, saponins, silica, coumarins, flavonoids (including glycoside rutin), triterpenoids, and carboxylic acids. The herb is rich in minerals, including copper and iron, and vitamins A, B, and C. Gathered fresh, chickweed is beneficial in poultice form to ease rheumatic pain and to treat boils and abscesses. The herb can also be used to draw out splinters and the stingers

of insects and to dissolve warts. Its vulnerary (wound-healing) action speeds the healing of cuts and wounds. Its emollient qualities soothe itching and irritation of eczema or psoriasis. An infusion may be added to bath water for soothing relief of inflamed skin. It also provides relief to swollen and painful hemorrhoids. Another species of chickweed, *S. dichotoma*, known as yin chai hu is used in Chinese medicine to stop nosebleed, to reduce heavy menstrual bleeding, and to bring down fevers. The species *S. alsine* is also used in Chinese medicine as a medicinal remedy for treating colds, snakebites, and even traumatic injury.

Preparations

Gather chickweed from young plants before or during flowering and throughout the year. Snipping the stems will encourage growth of new branches for later harvest. The freshly harvested herb will keep for several days if refrigerated. The fresh herb may be eaten in salads, or very, very lightly steamed as a potherb. Chickweed has a somewhat bland taste, so other edible greens may be added to the pot to enhance the flavor.

Infusion: Place 2 oz of fresh chickweed leaves and stems in a warmed glass container. Bring 2.5 cups of fresh, non-chlorinated water to the boiling point, and add it to the herbs. Cover and infuse the tea for about 10 minutes. Strain and drink warm. The prepared tea will store for about two days in a sealed container in the refrigerator. Chickweed tea may be enjoyed by the cupful up to three times a day. A strong infusion may be used as a skin wash or bath additive to soothe itching and inflamed skin.

Poultice: Chop fresh chickweed leaves and stems in sufficient quantity to cover the area being treated. Sprinkle the herb with water and place over the area. Cover the herbal mass with a strip of wet cotton gauze to hold the poultice in place. When gathering the older, tougher plant, the herb may be simmered either in water alone or in a 50/50 mixture of water and vinegar for about five minutes. Apply to the skin after the mixture has sufficiently cooled.

Tincture: Combine four ounces of finely-cut fresh or powdered dry herb with one pint of brandy, gin, or vodka, in a glass container. The alcohol should be enough to cover the plant parts. Place the mixture away from light for about two weeks, shaking several times each day. Strain and store in a tightly-capped, dark glass bottle. A standard dose is 1–4 ml of the tincture three times a day.

Precautions

The wind-blown pollen of chickweed may aggravate hay fever. Chickweed is considered safe for all external applications. There was a report in 1980 of "temporary paralysis" after ingestion of large amounts of the infused herb; however there are no other documented reports of toxicity. The PDR for Herbal Medicines reports no health hazards when this herb is taken "with the proper administration of designated therapeutic dosages. [7]

Distribution and identification:

Stellaria media is widespread in North America and Europe. There are several closely related plants referred to as chickweed, but which lack the culinary properties of plants in the genus *Stellaria*. Plants in the genus *Cerastium* are very similar in appearance to *Stellaria* and are in the same family

(Carophyllaceae). *Stellaria media* can be easily distinguished from all other members of this family by examining the stems. *Stellaria* has fine hairs on only one side of the stem in a single band. Other members of the family Carophyllaceae which resemble *Stellaria* have hairs uniformly covering the entire stem.

Ecology: The larvae of the European moth yellow shell (*Camptogramma bilineata*), of North American moths pale-banded dart (*Agnorisma badinodis*) or dusky cutworm (*Agrotis venerabilis*) or North American butterfly dainty sulphur (*Nathalis iol*) all feed on chickweed.



Figure 4

Whole plant

In both Europe and North America this plant is common in gardens [1] fields, and disturbed grounds. Control is difficult due to the heavy seed sets. Common Chickweed is very competitive with small grains, and can produce up to 80% yield losses among barle [8]



Figure 5

Uses: *Stellaria media* is delicious, edible and nutritious, and is used as a leaf vegetable, often raw insalads. It is one of the ingredients of the symbolic dish consumed in the Japanese spring time festival, Nanakusa-no-sekku.

Table 2

Common Name	Chickweed, Common chickweed
Family	Caryophyllaceae
Synonyms	Alsine media, Alsine apetala. Arenaria vulgaris. Stellaria vulgaris.



Figure 6



Figure 7

Cultivation details

A very easily grown plant, it prefers a moist soil and a position in full sun or partial shade [52, 238]. It can be very lush and vigorous when grown in a fertile soil, but in infertile soils it will flower and set seed whilst still very small. A very common garden weed, chickweed grows, flowers and sets seed all year round. The flowers open around 9 o'clock in the morning and remain open for about 12 hours. They do not open in dull weather. The leaves fold up of a night time, enfolding and protecting the tender buds of new shoots. A food plant for the caterpillars of many butterfly species. Special Features: Edible, Not North American native, Invasive, Naturalizing, Suitable for cut flowers, Suitable for dried flowers, Extended bloom season in Zones 9A and above. [9]



Figure 8

Chemistry:

The anthraquinones emodin, parietin (physcion) and questin, the falconoid kaempferol-3,7-O- -L-dirhamnoside the phytosterols -sitosterol and daucosterol, and the fatty alcohol 1-hexacosanol can be found in *S. media*. Other flavonoid constituents are apigenin 6-C-beta-D-galactopyranosyl-8-C-alpha-L-arabino pyranoside, apigenin6-C-alpha-L-arabinopyranosyl-8-C-beta-D-galactopyranoside, apigenin6-C-beta-D-glucopyranosyl-8-C-beta-D-galactopyranoside, apigenin 6, 8-di-alpha-L-arabino pyranoside plant

also contains triterpenoid saponins of the hydroxylated oleanolic acid type and tannins (including phlobatannins). Proanthocyanidins are present in the testa of seeds. [10]

6. Conclusion

The present survey concluded that, *Stellaria media* may prevent high-fat-diet induced fat storage in adipose tissue by inhibiting the intestinal absorption of dietary fat and carbohydrates through inhibition of digestive enzymes. The anti-obesity effects of in high-fat-diet fed mice may be partly mediated through delaying the Intestinal absorption of dietary fat and carbohydrate by inhibiting digestive enzymes. [11, 12]

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