

Chlorogenic acid - description, benefits, effect on the body and the best sources

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Abstract. Recently, information about chlorogenic acid has become increasingly common. The reason for this is simple - the amazing ability of chlorogenic acid to actively reduce weight has been found. Is this really so, and what other properties characterize this substance? Let's figure it out together.

Keywords: chlorogenic acid, general characteristics, daily requirement, digestibility, beneficial properties, signs of deficiency, signs of excess

Foods rich in chlorogenic acid:

- Coffee beans
- Dandelions [1]
- Sunflower seeds
- Blueberry
- Chicory (roots)
- Coffee
- Artichokes
- Eggplant [2]
- Apples [3]
- Pears [4]
- Potatoes [5]
- Jerusalem artichoke
- Sorrel [6]
- Cranberry
- Barberry

General characteristics of chlorogenic acid

Chlorogenic acid is most often found in plants and has also been found by scientists in some microorganisms.

It is colorless crystals. Its formula is $C_{16}H_{18}O_9$. Easily dissolves in water [7] and ethanol.

Chlorogenic acid is a product of caffeic acid, or, more precisely, its ester, which also contains a stereoisomer of quinic acid. It is extracted from plant materials using ethanol. Chlorogenic acid can also be obtained synthetically from quinic and cinnamic acid.

Daily requirement for chlorogenic acid

A person needs no more chlorogenic acid per day than is contained in one cup of coffee. Even taking into account the fact that during roasting most of this substance is lost. It is believed that a lack of chlorogenic acid in the human body is extremely rare, since it is found in many fairly common foods. As for black coffee, the norm for consumption is 1-4 cups per day.

The need for chlorogenic acid increases:

- with unstable blood pressure;
- for inflammation;
- with a tendency to cancer;
- weakness, lethargy, low body tone;
- if you want to lose weight.

The need for chlorogenic acid is reduced:

- for diabetes mellitus [8];
- osteoporosis [9];
- glaucoma [10];
- for problems with the liver and gall bladder;
- for stomach ulcers [11];
- with neurosis [12].

Digestibility of chlorogenic acid

This acid is well absorbed. However, when the body is alkalized, it can be converted into sparingly soluble salts.

Beneficial properties of chlorogenic acid, its effect on the body

Chlorogenic acid promotes weight loss and prevents the development of cancer cells. It has a beneficial effect on heart function [13], tones the heart muscle, equalizes pressure, prevents thrombosis [14] and normalizes blood sugar levels [15].

It strengthens the muscles and bones of the skeleton [16,17], normalizes liver function [18] and prevents the aging of the body.

Chlorogenic acid has many beneficial properties, among which are the following:

- antibacterial effect;
- anti-inflammatory;
- antiviral;
- antioxidant effect [19].

Experts believe that when consuming chlorogenic acid, diet and physical activity are required to achieve any lasting results. Doctors explain this by saying that, having received a push, the body must work. Otherwise, with low physical activity, the body will direct the resulting energy impulse against itself.

Interaction with other elements

It is believed that chlorogenic acid reduces the body's ability to absorb carbohydrates [20]. Soluble in water.

Signs of chlorogenic acid deficiency:

- rapid fatigue;
- lethargy;
- decreased immunity;
- unstable blood pressure;
- weak heart function.

Signs of excess chlorogenic acid in the body

Despite all its positive properties, chlorogenic acid can cause a lot of harm to our body. Firstly, this concerns its excessive use. Caffeine [21], which works well for the body in small quantities, can cause problems in large quantities. First of all, the circulatory system and nerves will be affected, and neurosis and arrhythmia may develop [22].

Immunity also decreases, and the possibility of blood clots increases. In addition, many of the previously listed positive properties of this acid can turn into negative ones when chlorogenic acid is consumed in large quantities.

Factors influencing the content of chlorogenic acid in the body

Chlorogenic acid occurs naturally mainly in plants. It is not produced in the human body, but is supplied there along with food.

As for drinking green coffee, the opinions of scientists are divided. Some consider it a healthy product, while others warn, claiming that it can lead to stomach pain, diarrhea and a number of other health problems.

Such experts still recommend giving preference to roasted coffee, in which the concentration of chlorogenic acid is 60% lower than the popular green coffee. Proponents of the benefits of green coffee recommend drinking the popular drink in the amount of 1-2 cups per day.

Chlorogenic acid for beauty and health

Chlorogenic acid must necessarily enter the body as a stimulating factor. In limited quantities, it invigorates our body, improves its protective functions, normalizes the functioning of internal organs, improves complexion and mood [23].

One of the most important properties of chlorogenic acid is its ability to reduce weight. Of course, this is a complex and not fully understood process. But at the moment, scientists claim that chlorogenic acid releases glucose from glycogen, thus giving the body the opportunity to use accumulated fat deposits in the first place.

Research confirms some progress in reducing body weight in people using coffee for this purpose. But it is still not worth considering that chlorogenic acid is the main factor contributing to the acquisition of ideal forms. Doctors emphasize the importance of proper nutrition and active physical activity.

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