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STUDY THE CHEMICAL COMPOSITION OF PEPSI-COLA AND COCA-COLA

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Abstract. This article discusses the chemical composition of Pepsi Cola and Coca Cola - carbonated soft drinks. Their manufacturers occupy a leading position in the production of soda. These fizzy drinks are consumed worldwide by all age groups to quench thirst. Their composition is identical to each other, and their difference in taste is due to the quantitative difference in some substances. Along with beneficial actions, they also have a negative effect on the body.

Key words: soft drinks, carbonated drinks, sugar color IV, phosphoric acid, caffeine, sweeteners.

Introduction. Two and a half centuries ago they didn't know how to make sparkling water. Mineral water with gas existed and in the 18th century it was already sold everywhere. But it quickly lost its carbonated properties.

The first person to enrich water with gas from outside was the London chemist Joseph Priestley. He is famous for the discovery of oxygen, ammonia and sulfur dioxide. In 1767, he decided to pass through water a certain gas that was released during beer fermentation. After a few hours, bubbles appeared in the water, which gave it a pleasant fresh taste.

In 1884, US pharmacist John Timberton began treating headaches with a syrup of coca leaves and kola nuts diluted with soda water. Plant components had a strong tonic effect, and over time they were replaced by chemical analogues. However, the drink became famous under the name "Coca Cola" [1].

Just a year later, another American pharmacist, Wide Morrison, prepared a cold drink based on cherry syrup called “Dr. Pepper” [2].

Another invention joined this series in 1898. Caleb Bradham, in search of an effective remedy for intestinal pain, mixed kola nut extract, vanilla and aromatic oils. The new drink was called Pepsi Cola and, in the eternal battle with Coca Cola, made the United States the leader in the soda industry.

1) Sugar - colorless monoclinic crystals with a sweet taste. It is a disaccharide from the group of oligosaccharides, consisting of residues of two monosaccharides: alpha-glucose and beta-fructose.

2) Sugar color IV is a dye that colors the drink brown. It is also responsible for aroma and taste. Designated E150d. The number IV or the letter d indicates the method of receipt. This is an ammonia sulfide technology in which sugar, glucose or fructose is heated so that it caramelizes at high temperatures in the presence of excipients. These are sulfite and ammonium compounds. After the reaction, all excipients are removed. E-150d is recognized as safe by world organizations. [3]

3) Acidity regulator - phosphoric acid. Orthophosphoric acid is designated E-338. It also, together with other components, affects the taste. [4]

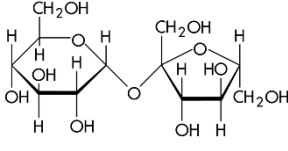
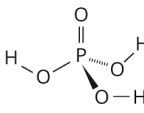
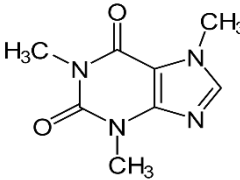
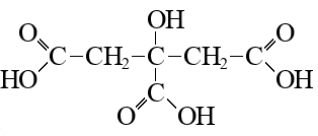
4) Natural flavors. Citrus flavoring is used as a natural flavoring.

5) Caffeine. No more than 150 mg/l. It has a pleasant stimulating effect on the human central nervous system.

The composition of Coca Cola and Pepsi Cola is almost the same. The difference is that Pepsi Cola contains citric acid and more sugar, while Coca Cola does not. Coca Cola's chemical composition contains more sodium, which is why the drink has a milder and more vanilla flavor.

Table №1. Comparison of the chemical composition of two branded drinks

№	Name of chemical composition	The structure of substance	Pepsi	Coca Cola
1	Purified water	H ₂ O	+	+

2	Sucrose		+	+
3	Sugar color IV (E150d)	-	+	+
	Phosphoric acid (E338)		+	+
4	Caffeine		+	+
5	Citrus flavor	-	+	+
6	Citric acid		+	-

Beneficial features. Coca Cola contains licorice. It is known to be effective in relieving coughs and colds. In some countries, treatment methods with Cola have been developed. For example, in China they treat a sore throat with hot Coca-Cola. For a therapeutic effect, the drink is heated without boiling. Add grated ginger and lemon juice. Then leave for 10 minutes.

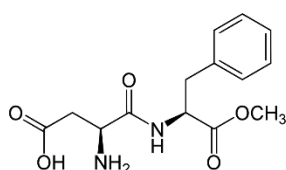
Caffeine and glucose in the drink increase the overall tone of the body, and also helps with intense mental activity and physical activity.

The drink promotes the production of serotonin, which has a positive effect on a person's mood.

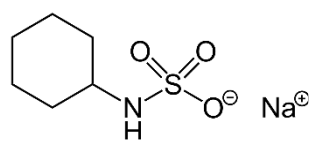
The drink helps with oral viral infections and other intestinal disorders. Patients with intestinal infections noted relief from the drink. This may be due to gas bubbles in the drink, which are able to penetrate hard-to-reach places in the digestive tract and cleanse it of pathogens and toxins [5].

Harmful properties. The drink is high in calories and is not recommended for people on a diet or people with high blood pressure. The huge sugar content means that it is harmful for diabetics and also has a harmful effect on teeth.

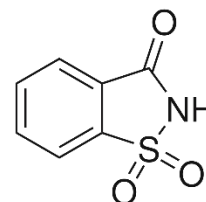
There are drink options with sweeteners. Sugar substitutes can be aspartame (1), cyclamate (2) and saccharin (3). But, unfortunately, they also have a harmful effect on the human body. For example, aspartame negatively affects the nervous system, cyclamate and saccharin cause destruction of body cells and the development of cancer.



1



2



3

The acidity regulator phosphoric acid is harmful to tooth enamel and promotes the development of caries.

Increased levels of uric acid (hyperuricemia) can lead to the development of gout and the formation of kidney stones. And fructose in the drink increases the level of uric acid in the blood.

Excessive and irregular consumption of the drink may have an impact on mental health, the development of cardiovascular disease, and may have metabolic, renal or dental health effects. [5]

Conclusion: Pepsi Cola and Coca Cola are world famous carbonated drinks that are consumed all over the world. They are largely similar in composition and differ in the insignificant content or absence of several substances, as well as the difference in calories. Consuming these drinks in daily amounts is not harmful to health, but their abuse leads to increased blood sugar levels and negative consequences, such as organ cancer, caries, gout and others.

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