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PRESENT-DAY USE OF FOOD ADDITIVES AND DYES

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Аннотация: научно-технические исследования предоставили людям огромные возможности.В настоящее время в ходе ряда работ, направленных на решение продовольственной проблемы, стоящей перед человечеством, используется широкий спектр кормовых красителей для искусственного улучшения вкуса продуктов питания и напитков, добавления в них различных видов кормовых добавок для продления срока хранения, улучшения внешнего вида до такой степени, чтобы они радовали глаз, и пробудите аппетит в более сильном состоянии.Из таких красок Е-171 - диоксид титана, а Е173 - алюминий и его соединения.

Ключевые слова: диоксид титана Е-171, алюминий Е-173, пищевые красители, вещество, отшелушивающее надпочечники, гормоны.

Annotation: scientific and technical research has provided people with enormous opportunities.Currently, in the course of several works aimed at solving the food problem facing humanity, a wide range of feed dyes are used to artificially improve the taste of food and drink, add various types of feed additives to them to prolong the shelf life, improve the appearance to the point of pleasing the eye, and bring appetite to a stronger window.Of such paints, E-171 titanium dioxide and E173 are aluminum and its compounds.

Keywords: E-171 titanium dioxide, E-173 aluminum, food dyes, adrenal peeling substance, hormones

Introduction: how much artificial additives now affect the human body remains one of the issues that most interest consumers.There are several organizations in the world to study this issue.United Committee of experts on food additives - (Joint FAO / WHO Expert Committee on Food Additives-JECFA) control the quality of the feed.The organization approved special procedures for the export of products in 1991.It is forbidden to use spices that the committee has not approved in the industry.In order to strengthen control over the use of food additives, the letter E was placed in front of it for each ingredient, and the following special symbols were introduced, consisting of three or four digits with a symbolic meaning[1,4].

E100-182. Brightens or restores food color;

E200 – 299-preservatives (preservative that prevents canned food from spoiling). Protects the product from germs and fungi and prolongs its shelf life;

E300-399 is an anti-oxidation additive. Protects food from oxidation;

E400 – 499. Provides the normative density of the product, while thickening additives increase their creaminess;

E500 - 599 are emulsifiers (emulsion surfactants). It forms a kind of similar mixture from two different liquids that are not impregnated with each other, such as water and oil;

E600 - 699-taste and odor enhancers;

E700 – 800-Reserve Index (conditional Mark) s;

E900-999. Prevents or reduces the appearance of pores on products, devoting zeb to their appearance.

E-171, E-173, which is considered a food dye according to the committee, is part of shubkhali food dyes.Why the skepticism of these two types of food dyes is causing a lot of research on a global scale.Many European countries, Russia, Ukraine(although it is the largest producer of titanium dioxide) have developed final measures to exclude E171s and E173s in the food industry.World Health Organization (WHO) and food - food and Agriculture Organization (FAO) joint food additive expert committee (JECFA) on November 24, 2023 titanium dioxide.In addition EFSA updated the assessment of the safety of the food additive titanium dioxide (E 171) according to the request of the European Commission in March 2020.The updated assessment revises the results of EFSA's previous assessment, published in 2016, this highlighted the need for more research to fill the data gaps.The chairman of the EFSA expert panel on food additives and flavorings (FAF) is prof.Maged Younes said, " Given all available scientific research and data, he concluded that titanium dioxide could no longer be considered safe as a food additive . The reason for this conclusion is that we could not rule out genotoxicity problems after consuming titanium dioxide particles. After oral administration, the absorption of titanium dioxide particles is low, but they can accumulate in the body"[2,5].

In 2019, the EFSA published a statement to consider the risk associated with titanium dioxide (E171), a food additive carried out by the French agency for food, environment and Occupational Safety(ANSES).In the same year (2019) the Netherlands Food and Consumer Product Safety Administration (NVVA) commented on the possible health effects of the food

additive titanium dioxide, which stressed the importance of studying immunotoxic effects in addition to potential reprotoxicological effects[3,6].

Titanium dioxide (also called INS1711 in the international numbering system for food additives (INS))) is a widely used food additive. It is mainly used as a bleach and bleach in a wide range.Products such as chewing gum, mayonnaise, soy milk, candies, pastries, coffee creams, chocolates, etc.are also used in a wide range in the creams of sweets.Titanium dioxide is considered low in bioavailability in the Transcaucasian tract but low in bioavailability in relation to it in the human body[7,8].

Material and methods:white labaratory rats are widely used in the experiment.Organs isolated from the animal were dried in special drying cabinets.The neutron-activation method was used to determine whether rats accumulate titanium dioxide in the adrenal gland.

Results: the whitening and dimming properties of titanium dioxide (TiO2) are commonly used when used as a food additive (E171). However, the safety of this supplement may be questionable, as TiO2 nanoparticles (TiO2-NPs) have been classified as potentially toxic. This study focused on illuminating the mechanisms behind the potential toxicity of E171 to epithelial intestinal cells using two in vitro models of cells with acute (6-48 hours) or recurrent (3 weeks three times a week) effects on E171 and two different types of Thio2-NP. Our results confirm that E171 has caused damage to these cells and that the main mechanism of toxicity is oxidative action. The responses of the two models to E171 were similar, moderate but significant, accumulation of reactive oxygen species and simultaneous down regulation of antioxidant enzyme catalase, superoxide dismutase, and glutathione reductase expression. Oxidative DNA damage was found in affected cells, proving that E171 effectively causes oxidative stress; however, endoplasmic reticulum stress was not detected.

Discussion: The effect of E171 was less intense than that of repeated exposure after acute exposure, which is associated with higher Ti accumulation. The effects on cells exposed to E171 were stronger than those exposed to Thio2-NPS. Combined data suggest that E171 induces only moderate toxicity through oxidation in epithelial intestinal cells.

Conclusions: in the food industry, various district colorful food additives are currently used.Information about the effect of these food supplements on the body is always a matter of debate among scientists.Among these controversial species, the feed additive E171 stands in the foreground.Because in European countries and in the Russian Federation, it is forbidden to add E-171 to feed products.E-171 i.e. titanium dioxide nonoparticles cause lung cancer in oraganism and

various other types of malignant tumors.Results of the experiment conducted it shows that the adrenal gland, which is considered a parenchematous organ, is full planadi.To ' the plann indicator is considered high.The Organ is enlarged from the ratio to the norm.

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