

ORGANIC FOOD COLORS: FRIENDLY AND DANGEROUS

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There are no spheres of human activity without using organic compounds. Analysis of assortment structure of food colors and their safety is capture attention.

A history of using food colors has goals a centuries. Known, that Egyptians during 400 B.C. used natural color matters for sweets and vine to improve their appearance. People of the countries of Asia and Romans added to food turmeric and saffron. But only since 19th century thanks for increasing industrial production stand using widely to use for improving consumer quality of foods. Business necessity of using wide range at new synthetic compounds has evolved. New organic compounds obtained due to chemical and biotechnology discoveries. These natural colors lost their dominant important after discovering of first synthetic dyes: mauve (W.H. Perkin, 1856), magenta (F.-E. Verguin, 1858), indigo (A. Baeyer, 1878).

Now natural and synthetic colors are used for foods color strengthening and restoration, coloring of cakes, ice-cream and beverages.

For chemical structure natural colors divided in to:

1. aliphatic and alicyclic (carotenoids, lycopines, tetraterpenes nature, polienes);
2. aromatic colors (diarylmethane dyes – curcumine; quinons – alizarine);
3. heterocyclic compounds (oxigencontaining – flavanol, luteoline; nitrogencontaining – indigo, turmeric).

All this compounds are selected from different plant and animal objects or obtained by microbiological methods. Natural colors less toxic, but there are daily intakes. Several food colors known as antibiotics, vitamins.

Synthetic colors are widely to use because of low stability of natural compounds. As natural food colors synthetic are divided in to several groups. Among organic synthetic colors are distinguished triarylmethen colors (Green S), quinolinic colors (Quineline Yellow), indigo dyes (Indigotine), azo dyes (Tartrazine, Crimson).

Preferences of synthetic organic dyes:

- very soluble in water;
- less sensitive to conditions of technological processing and storage;
- heat stability;

- brightness.

According to “E number” list was registered 80 food colors (E 100-182). Most of them are synthetic organic compounds. In Ukraine allowed about 60 food colors not only from “E number”. In addition to “E number” used metilviolent, phuxin and other. Most of food colors are xenobiotics, that’s why main requirements to food colors are non-toxic and safety. For several food colors was revealed negative influence for human body. This compounds was excluded from using.

In our country was banned E121, E123, E128. But several dangerous especially for children addition are used. Foods with such additions have special package marking and are forbidden in some countries of Europe. Among of dangerous E-colors-allergens are:

- E-102 (Tartrazine) – synthetic azo dye. Yellow food color for candies, jellies, ice cream, beverages, dairy products, purees, jams, sauces and ketchup. Side effects: allergy, especially for people who are in tolerant to salicylates, children hyperactivity;
- E-104 (Quinoline yellow) – yellow food color for baked goods, beverages, sweets, dairy, meat and fish products. Side effects: may act as a histamine liberator;
- E-110 (Sunset Yellow, FCF) – synthetic azo dye. Yellow food color for confectionery and pasta, dairy products, sauces and ketchup in the sauce and jam. Side effects: a histamine liberator, and may intensify symptoms of asthma;
- E-122 (Azorubin) – synthetic azo dye. Red food color for sausage and confectionery, desserts, drinks. Side effects: problems with kidneys implicated in hyperactivity of children;
- E-124 (Ponce 4R) – synthetic azo dye. Food color for beverages, sauces and ketchups, desserts, fish and meat products, dairy and meat products. Side effects: cancerogenic;
- E-129 (Allura Red) – synthetic azo dye, food color for snacks, sausces, preserves, soups, wine. Side effects: cancerogenic.

Health care is not only a fashion trend but emergency call of time. Therefore there is a requirement in new quality and safety food colors. The daily intake of food colors is exceeds because of often and long-term use. As result, the problem of research new food colors is actually now.