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Short Communication

SYNTHETIC LYCOPENE: THE FUTURE BUT UNAWARE FACT

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ABSTRACT

Food color is used as a food additive. A color additive is any dye, Pigment or substance. Mainly two type of food colors are used in food Industry: Natural and Artificial. There are 26 colors which are permitted to be used in food. A few Natural colors mainly used are Annatto,turmeric, Lycopene, Beet root and caramel etc. Lycopene is processed from Tomatoes and widely used. In this short communication we wanted to create a awareness about synthetic lycopene and their properties.

KEYWORDS

Annatto, turmeric, lycopene, beet root, caramel.

Lycopene:

Lycopene belongs to a group of naturally occurring pigments known as carotenoids that give fruit and vegetables their brilliant red, orange and yellow coloring. Tomatoes and processed tomato products are among the richest source of lycopene. It is also found in Watermelon, Papaya, pink Grapefruit and Pink Guava.

Health benefits of lycopene:

- Powerful Antioxidant that eliminate dangerous Free radicals that can damage DNA and other fragile cell structures.
- It may play a significant role in many health concern like Cardiovascular Diseases, diabetes, Cancer, osteoporosis, Liver diseases, Cataracts and male infertility.

What is Synthetic Lycopene?

Synthetic lycopene is prepared from synthetic intermediates that are commonly used in the synthesis of other carotenoids used in food. It is produce by the Wittig condensation of synthetic intermediates commonly used in the production of other carotenoids used in food. It is consists predominantly of all trans lycopene together with 5 cis lycopene and minor quantities of other isomers. Commercial Lycopene preparations intended for use in food are formulated as suspensions in edible oils or water-dispersible powders and are stabilized with Antioxidants.(Paust,1996;Ernst,2002).

Properties of Synthetic Lycopene:

- Synthetic Lycopene occurs as a red to dark violet crystalline powder.
- It is insoluble in water and nearly insoluble in methanol and ethanol but freely soluble in chloroform and tetrahydrofuran.
- It is sparingly soluble in ether, hexene and vegetable oil.
- It is unstable when exposed to light, Heat and oxygen. So For prevention from oxidation it is packed in tightly sealed, light proof packaging.
- Formulated Products include solutions or suspensions of lycopene in edible fats and oils emulsions and water dispersible powders containing water soluble food ingredients such as protein and carbohydrates.

Know More Synthetic Lycopene:

Synthetic lycopene is being sola as a replacement for natural lycopene. One of these is being marketed under the name “Lyco Vit R”, created by BASF Corporation. The novel food ingredient consist of synthetic lycopene to be marketed as of three different formulations. These are lycopene 10%, lycopene 10 cold water dispersion and lycopene dispersion 20%. This Synthetic lycopene to be marketed as of three different formulations.

These Synthetic Lycopene has been given Generally Regarded As safe) status and sustainability similar to naturally occurring lycopene”. Synthetic lycopene consist mainly of the all trans lycopene with 5-cis-Lycopene and up to 3.5% other cis isomers. It contains the same cis isomers found in tomatoes and tomato products. In shorts term studies with synthetic lycopene as a bead let formulation and natural source lycopene as tomato concentrate.

The accumulation of lycopene in the liver and the presence of pigment deposit in the hepatocytes were similar and neither was associated with any histopathological changes. Synthetic lycopene is insoluble in water and is formulated into dispersible products before use in food.

Table: Intended uses and use levels of synthetic lycopene (based on data provided by BASF A Gand DSM Nutritional Products Ltd).

Food category	Food Use level (mg/kg)
Flavoured milk and milk drinks	30
Fermented milk beverages	30
Imitation milks	30
Dry milk	30
Soy milks	30
Yoghurt	20-40
Frozen Yoghurt	20-40
Margarine-like spreads	20
Chewy and nougat candy	15
Fruit Snacks	15
Fruit-flavoured drinks	9 to 15
Tea, ready-to-drink	3 to 15
Milk-based meal replacements	9 to 40
Bottled water	2 to 15
Fruit juice	4 to 20

Uses of Synthetic Lycopene:

- Synthetic lycopene is intended for use as a food color and food additive.
- Food Categories in which lycopene would be used include baked goods, breakfast cereals, dairy products including frozen dairy desserts, dairy product analogs, spreads, bottled water, carbonated beverages, fruit and vegetable juices, soya bean beverages, candy, soups, salad dressings and others.
- It may also be used in multi- vitamin and muti minerals tablets and other type of food supple' and in meal replacements.
- The use levels of lycopene depend on its intended function and may vary from vary from 2 mg/l in bottled water to 130 mg/kg in ready to eat cereals. In general, Lycopene will be used at sustainability lower levels as a color than as a food additive.

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