

Sanitation Standard for Natural Edible Colorants

Article 1

This Standard is prescribed in accordance with the provisions of Article 17 of the Act Governing Food Safety and Sanitation.

Article 2

The source of solvent to be used for extraction of natural edible colorants includes:

1. Water, ethanol, vegetable oil or other food raw materials.
2. Solvents permitted by Sanitation Standard for Processing Aids.

Article 3

The natural edible colorants with excipients or other additives added are limited to the product names listed in the Scope and Application Standard of Food Additives, or other food raw materials.

Article 4

The sources, major component and specifications standard of natural edible colorants shall comply with the requirements of the Appendix table.

Article 5

This Standard shall be implemented from 1 January, 2024.

Appendix table

English Name	Sources and major component	Specifications Standard *
Algal carotenes	Sources: <i>Dunaliella salina</i> Major component: Carotenoids	
Amaranthus Colors	Sources: Amaranth Major component: Amaranthin	
Annatto, water or oil soluble	Sources: The seeds of <i>Bixa orellana</i> L. Major component: Water-soluble Annatto: Norbixin Oil-soluble Annatto: Bixin	Mercury: Not more than 1 mg/kg Cadmium: Not more than 0.5 mg/kg
Anthocyanin	Sources: Red, blue, purple and other dark plants and fruits; such as: blueberry, cherry, elderberry, grape juice, grape peel, hibiscus, mulberry, perilla, plum, purple corn, red cabbage, strawberry, eggplant skin, purple sweet potato, red tamarind, butterfly pea flower, etc. Major component: Anthocyanin.	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Beet Red Color	Sources: The roots and stems of <i>Beta vulgaris</i> Major component: Betanin.	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Carmine	Sources: <i>Dactylopius coccus</i> Costa Major component: Carminic acid	Arsenic: Not more than 1 mg/kg Mercury: Not more than 0.5 mg/kg Cadmium: Not more than 0.1 mg/kg <i>Salmonella</i> : Negative
Chlorophyll	Sources: Extracted from edible plants or green algae Major component: Chlorophyll	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Cocoa Color	Sources: The seeds of <i>Theobroma cacao</i> Major component: Flavonoids	
Gardenia Blue	Sources: Obtained from the enzymatic treatment of gardenia pigments Major component: Genipin	
Gardenia Red	Sources: Obtained from the enzymatic treatment of gardenia pigments Major component: Genipin	
Gardenia Yellow	Sources: The fruits of Gardenia Major component: Crocin	
Laver Color	Sources: Purple laver Major component: Phycoerythrin	
Monascus Color	Sources: <i>Monascus purpureus</i> , <i>Monascus anka</i> Major component: monascorubin	
Onion Color	Sources: Bulb of onion Major component: Flavonoids	
Persimmon Color	Sources: Obtained from the edible portions of persimmon after fermentation, separation, pressing,	

	browning, filtration, concentration, and drying Major component: Polyphenol	
Plant carbon	Vegetable carbon is produced by the carbonization of vegetable material such as wood, cellulose, peat and coconut and other shells. The carbonization temperature is from 800 to 1000°C).	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Plant carotenes	Sources: Extracted from plants or vegetable oils; such as: carrots, red peppers, orange peels, yellow corn seeds, sweet potatoes, etc. Major component: Carotenoids	
Safflower Yellow	Sources: The petals of <i>Carthamus tinctorius</i> Major component: Flavonoids	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Saffron	Sources: The stigma of <i>Crocus sativus</i> L. Major component: Crocin and Crocetin	
Sorghum Color	Sources: The seed coats of sorghum Major component: Flavonoids	
Spirulina Color	Sources: Spirulina Major component: Phycocyanin	Mercury: Not more than 1 mg/kg
Tamarind Color	Sources: The seeds of <i>Tamarindus indica</i> L. Major component: Flavonoids	
Tomato Color	Sources: The fruits of tomatoes Major component: Lycopene	Lead: Not more than 1 mg/kg Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Turmeric Color	Sources: The roots and stems of <i>Curcuma longa</i> L. Major component: Curcumin	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg
Xanthophylls	Sources: Concentrated extract from alfalfa Major component: Xanthophylls	Mercury: Not more than 1 mg/kg Cadmium: Not more than 1 mg/kg

Note:

1. The maximum level of arsenic and lead in natural edible colorants, unless otherwise specified in this table, shall meet the following requirements:
 - (1) Arsenic: Not more than 3 mg/kg.
 - (2) Lead: Not more than 2 mg/kg.
2. The maximum level of total aflatoxins and citrinin in natural edible colorants shall comply with the Sanitation Standard for Contaminants and Toxins in Food.