

Standard and Specification > Natural Additives > Berries Color

Berries Color	
Definition	This is a collective name for pigments which is originated from berries. Major component of this pigment is anthocyanin which is obtained from juice or water extract of berries. There are gooseberry color (origin : Cucumis myriocarpus NAUO), European dewberry color (origin : Rubus caesius L. etc), raspberry color (origin:Rubus idaeus L. etc.), American red raspberry color (origin : Rubus strigosus MICHX), red currant color (origin : Ribes sativum SYME.), Loganberry color (origin : Rubus loganobaccus BAILEY.), Mulberry color (origin : Morus nigra L., M. alba L.), blackberry color (origin : Rubus fruticosus L.), black currant color (origin : Ribes nigrum L.), black huckleberry color (origin : Gaylussacia baccata C. KOCH.), blueberry color (origin : Vaccinium corymbosum L.), salmonberry color (origin : Rubus spectabilis PURSH.), strawberry color (origin : Fragaria ananassa DUCHESNE.), elder berry color (origin : Sambucus caerulea RAFIN, etc.), Uguisukagura color (origin : Lonicera carulea L. var. emphylocalyx NAKAI), Whortleberry color (origin : Vaccinium myrtillus L.), cowberry color (origin : Vaccinium Vitis Idaea L.), cranberry color (origin : Oxycoccus macrocarpus PERS.), thimbleberry color (origin : Rubus occidentalis L.). Dilutant, stabilizer, or solvent can be added for the purpose of color value adjustment and quality preservation.
[Compositional Specifications of Berries Color]	
Content	Color value(E 10%, 1cm)of Berries Color should not be less than the indicated value.
Description	Berries Color is dark red liquid, lump, powder, or paste with a slight characteristic scent.
Identification	(1) Test Solution obtained in Color Value section of Berries Color shows red ~ dark blue color and a maximum absorption near 500 ~ 540 nm. (2) When Test Solution in (1) is alkalinized by adding sodium hydroxide solution, the color of the solution changes.
Purity	(1) Arsenic : 0.25 g of Berries Color is placed in a platinum, quartz, or porcelain crucible. 10 ml of magnesium nitrate in ethyl alcohol (1→50) is added to the crucible and then alcohol is ignited. It is then reduced to ash by heating at 450~550°. If carbonaceous substance persists, it is wetted with minute amount of nitric acid, which is further heat treated at 450~550°. After cooling, 3 ml of hydrochloric acid is added to the residue, which is then dissolved by heating in a water bath. When test for arsenic is carried out with this test solution, it should not be more than 4ppm. (2) Heavy Metals : 1 g of Berries Color is carbonized by heating mildly in a quartz or porcelain crucible. After cooling, add 2 ml of nitric acid and 5 drops of sulfuric acid, it is heated until white smoke disappears, which is then reduced to ash by further heating at 450~550°. After cooling, 2 ml of hydrochloric acid is added, which is then evaporated to dryness in a water bath. 3 drops of hydrochloric acid and 10 ml of hot water are added to the resulting residue, which is then heated for 2 minutes. After cooling, 1 drop of phenolphthalein indicator solution is added, then ammonia solution is added until the color of the solution becomes pale red. The resulting solution is transferred into a Nestler cylinder by rinsing with water. 50 ml of test solution is prepared by adding 2 ml of diluted acetic acid (1→20) and water. When this solution tested for heavy metals, the content should not be more than 20ppm. Color standard solution is prepared by the following procedure. 2 ml of nitric acid, 5 drops of sulfuric acid, and 2 ml of hydrochloric acid are added and evaporated to dryness in a crucible that is made of the same material used for test solution preparation. 3 drops of hydrochloric acid are added to the residue, which is then transferred into another Nestler cylinder as described above. Finally, 2 ml of lead standard solution, 2 ml of diluted acetic acid (1→20), and water are added to bring the total volume to 50 ml. (3) Sulfur Dioxide : When Berries Color is tested by Purity (3) for 「Grape Skin Extract」, the content should not be more than 0.005% per 1 color value (E 10%, 1cm).
	Appropriate amount of Berries Color is accurately weighed so that the absorption is within 0.3 ~ 0.7 and dissolved in citric acid-dibasic sodium phosphate buffer solution with pH 3.0 so that total volume is

<p>Assay(Color Value)</p>	<p>100 ml (Test Solution). If necessary, the solution is centrifuged and the supernatant is used. Using citric acid-dibasic sodium phosphate buffer solution with pH 3.0 as a reference solution, absorption A is measured at a wavelength of maximum absorption near 500 ~ 540 nm with 1 cm path length. Color value is obtained using the following equation.</p> $\text{Color Value}(E_{10\%, 1\text{cm}}) = \frac{A \times 10}{\text{Weight of sample(g)}}$ <p>[Citric acid-dibasic sodium phosphate buffer solution (pH 3.0)] Solution 1 : 0.1 M citric acid solution : 1 l of solution containing 21.01 g of citric acid (C₆H₈O₇ · H₂O). Solution 2 : 0.2 M dibasic sodium phosphate solution : 1 l of solution containing 71.63 g of dibasic sodium phosphate (Na₂HPO₄ · 12H₂O). Solution 1 and Solution 2 are mixed well (59 : 41) and its pH is adjusted to 3.0.</p>
<p>Permitted Use Level of Berries Color</p>	<p>Berries Color should not be used for the food items listed below.</p> <ol style="list-style-type: none"> 1. Natural food [Natural food(meat, seafood (whale meat included), vegetables, fruits, marine algae, bean, and their simply processed food (peeled or cut)] 2. Tea 3. Hot pepper powder, red pepper powder or shredded red pepper 4. Kimchi 5. Fermented hot pepper soybean paste 6. Vinegar