



- **Latin Name: Sorghum bicolor var.kaoliang**
- **Active Ingredient: Sorghum Red Pigment**
- **CAS No.:**
- **Test method: TLC**
- **Specifications: 20:1**

Product Description:

Name :Sorghum Red Pigment Extract

Source: Sorghum

Botanical Name : Sorghum bicolor var.kaoliang

Extract part: Seed

Purity: 100% nature

Composition:Sorghum Red Pigment

Composition ratio:20:1

Appearance: Fine Brownish Red powder

Country of origin:P.R. China

Source

Sorghum is the common and genus name for various species of grasses (family Poaceae), particularly popular in the term for referring Sorghum bicolor which is extensively cultivated in warmer climates worldwide as a food crop.Characterized by an inflorescence (head) and grain (fruit or edible seed) ,sorghum is a member of the grass family, Poaceae, a group of flowering plants that also includes such important agricultural grains as wheat, rice, maize (corn), and sugar cane. Moreover ,shell of sorghum is used as the source of natural dye sorghum red pigmen.Research shows the sorghum red pigment has good property for rayon fabric dyeing, the rubbing and washing color fastness of rayon fabric samples are reach to the requirement of textile dyeing and the maximum absorption wavelength of the sorghum red pigment changed with pH values.

Main bio-actives

Sorghum red pigment is isoflavones galactoside , a kind of natural pigment from the kaoliang shell and safety, not poisonous edible. Main components of red pigment were 5, 4'-two hydroxyl isoflavones-7-O-galactoside and 5, 4'-two hydroxyl-6, 8-two methoxy isoflavone-7-O-galactoside.

Function

Antioxidative

Researches shows Sorghum possess antioxidative activities due to anthocyanins it contains .Food Chemistry further suggested Sorghum brans had three to four times higher anthocyanin contents than the whole grains base on the spectrophotometric and HPLC analyses result .

Another report on Food Chemistry also shows the tannin sorghum types, had higher ABTS and DPPH antioxidant activities, compared to the types without tannins. Antioxidant activity was significantly correlated with total phenols and tannins ($r > 0.95$). However ,Decortication, reduced antioxidant activity of both tannin and non-tannin sorghum by 82–83% due to the removal of the pericarp and the testa, which decreased phenols.

Study reported on Journal of Agricultural and Food Chemistry further indicated black sorghum had the highest anthocyanin content (average = 10.1 mg/g in bran). The brown and red sorghum brans had anthocyanin contents of 2.8-4.3 mg/g. Only 3-deoxyanthocyanidins were detected in sorghum. These compounds are more stable to pH-induced color change than the common anthocyanidins and their glycosides. Additionally, crude sorghum anthocyanin extracts were more stable than the pure 3-deoxyanthocyanidins. The antioxidant properties of the 3-deoxyanthocyanidins were similar to those of the anthocyanins. Pigmented sorghum bran has high levels of unique 3-deoxyanthocyanidins, which are stable to change in pH and have a good potential as natural food pigments.The antioxidative activity of sorghum red pigment(SRP) was investigated by employing several in vitro assay systems,including 1,1di phenyl-2-picrylhydrazyl(DPPH·)/ peroxide anion radical /hydroxyl radical scavenging,peroxidation of polyunsaturated fatty acid from yolk l ipoprotein induced by Fe²⁺ method,and βcarotene/ linoleic acid assay system.SRP showed a higher scavenging activity against free radicals such as DPPH· ,peroxide anion radical and hydroxyl radical.Furthermore, SRP exhibited powerful inhibitory effects on peroxidation of polyunsaturated fatty acid from yolk lipoprotein induced by Fe²⁺ and notable inhibitory effects on βcarotene/linoleic.

Anti-diabetic

Scientists reported on Nutrition & Metabolism in 2012 said sorghum is a rich source of phytochemicals also has effect against diabetic and their study indicate that the hypoglycemic effect of SE was related to hepatic gluconeogenesis but not the glucose uptake of skeletal muscle, and the effect was similar to that of anti-diabetic medication.In the test of oral administration of sorghum extract (SE) on hepatic gluconeogenesis and the glucose uptake of muscle in streptozotocin-induced diabetic rats .After six weeks SE administration diabetic rats reduced the concentration of triglycerides, total and LDL-cholesterol and glucose, and the area under the curve of glucose during intraperitoneal glucose tolerance tests down to the levels observed in non-diabetic rats.The result indicated SE may has a potential to be developed into an alternative anti-diabetic therapy.

Sorghum red

The investigation of the location and properties of the pigments in six white seeded sorghum varieties and hybrids was published on Cereal Chemistry . Freezing microtome sections revealed an orange stylar area and yellow pigmentation in the pericarp and the endocarp of the grain

examined. Where colored spots were visible on the surface of the seed, the epicarp, mesocarp, and endocarp exhibited orange pigmentation. A procedure was developed to separate the different pigments by paper chromatography. On the basis of spectral properties, color reactions, and Rf values, it is apparent that two forms of apigeninidin and two forms of luteolinidin were present in each of the six varieties or hybrids investigated.

Applications

Sorghum red pigment can be used to color for food, medicine, cosmetics, dyes and other industries. Attributed to the high level phytochemicals of Sorghum, Sorghum extract also have many biochemical properties including anti-diabetic and antioxidative.

--Maize - Wikipedia, the free encyclopedia; <https://en.wikipedia.org/wiki/Maize>

--Z. M. Liu, M. S. Song, Y. H. Lu, "Properties of Sorghum Red Pigment and its Application to Rayon Fabric Dyeing", Advanced Materials Research, Vols. 821-822, pp. 638-641, Sep. 2013

--Joseph M. Awika, Lloyd W. Rooney, Ralph D. Waniska; "Anthocyanins from black sorghum and their antioxidant properties"; Food Chemistry

--Awika JM, Rooney LW, Waniska RD; "Properties of 3-deoxyanthocyanins from sorghum"; Journal of Agricultural and Food Chemistry

--ZHU Yao-hua, YANG Jian-xiong, DAI Bin; "In vitro antioxidative properties of sorghum red pigment"; Journal of Shaanxi Normal University (Natural Science Edition) 2009-03

--Jungmin Kim and Yongsoon Park; "Anti-diabetic effect of sorghum extract on hepatic gluconeogenesis of streptozotocin-induced diabetic rats"; Nutrition & Metabolism 2012, 9:106

--Nip, W.K. and Burns, E.E; "Pigment Characterization in Grain Sorghum. II. White Varieties." Cereal Chemistry, 48. pp. 74-80.