

Black Rice: Health Benefits

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ARTICLE ID: 040

Introduction:

Black rice is a nutrient rich variety of rice which is mainly cultivated in Asian countries. Black rice is also known as purple rice, forbidden rice, heaven rice, imperial rice, king's rice and prized rice. Black rice (*Oryza sativa* Linne (Gramineae), has a deep black color and usually turns deep purple when cooked. Its dark purple color is primarily due to its anthocyanin content which is higher by weight than that of other colored grains. It is suitable for creating porridge, dessert, traditional Chinese black rice cake, bread, and noodles. Black rice contains essential amino acids like lysine, tryptophan; vitamins such as vitamin B₁, vitamin B₂, folic acid and it is a good source of minerals including iron, zinc, calcium and phosphorus. Black Rice is a good source of fiber and even a good source of plant-based protein.



Fig. Black rice

One serving of black rice (1/4 cup or 50g) contains approximately-

- **Calories:** 160
- **Fat:** 1.5 grams
- **Protein:** 4 grams

- **Carbohydrates:** 34 grams
- **Fiber:** 1 gram
- **Iron:** 6% of the Daily Value (DV)

Black rice has the highest content of total anthocyanins (327.60 mg 100 g⁻¹) among all of the studied colored grains. This rice enhances health and longevity, protects heart health, reduces atherosclerosis, controls hypertension, improves digestive system, has anti-inflammatory action, reduces allergy, detoxifies the body, improves lipid profile, reduces risk of diabetes, helps in weight management, reduces growth of cancer, boost cognitive function and increases quality of life. Black rice has been involved in the field of medicine other than cooking and fodder for cattle. Black rice cultivation can generate great employment opportunities and producer can earn profit from the sale of black rice

Importance of Black Rice

1. Protects heart health.
2. Helps detoxify the body.
3. A naturally gluten free grain.
4. Aids in satiety and weight management.
5. Beneficial in iron replacement therapy keeps away from cancer.
6. Anti- diabetic and Anti-inflammatory.
7. Good for skin, hair and eyes.
8. Used as functional food colorant and can be used in various dye products.
9. Used in making various gluten-free products: cakes, cookies, tortillas, noodles, muffins, etc
10. Black rice sap incorporated in anti-aging, anti-wrinkle formation and skin-whitening cosmetics in China

TABLE 1: Comparison with white rice and brown rice

Nutrients content (/100g)	Black rice	White rice	Brown rice
Carbohydrate (g)	76.17	79.3	76.2
Fat (g)	2.68	0.6	2.7
Protein (g)	8.5	6.8	7.9
Fibre (g)	3.4	0.6	2.8
Iron (mg)	3.5	0.53	1.8

Sources: (Blackrice.com; Nutritiondata.com)

Health Benefits

This colorful black rice offers a variety of health benefits. One of the most noticeable comes from the deep color of the grain. Black rice is a major source of anti-inflammatory agents, therefore is a great source of health.

Improved eye health

Along with protective anthocyanins, black rice contains high amounts of lutein and zeaxanthin, two carotenoids known for their role in supporting eye health. These antioxidants help to protect the cells in your eyes and to reduce the effects of ultraviolet (UV) radiation. Black rice contains the two carotenoids that are responsible for eye health and development namely lutein and zeaxanthin. They protect eyes from harmful blue light waves and prevent damaging of free radicals. Antioxidants are also playing an important role in protecting eyes against age-related macular degeneration (AMD), which is causing blindness worldwide.

Diabetes management

Flavonoids like anthocyanins also influence blood sugar levels and diabetes management. Phytochemicals have a positive influence on your body, improving insulin sensitivity so you can better use glucose. They also help by reducing sugar digestion in your small intestine, which lowers sugar levels in your blood.

Nutrition

Black rice is rich in amino acids, fatty acids, anti-oxidants, flavonoids, anthocyanins, and other phenolic compounds. There are 18 amino acids in black rice, with a mix of essential and non-essential types. Amino acids are crucial to many of your body's functions, from helping repair skin and tissues to improving your energy levels and digestion. Black rice is also a good source of the following nutrients:

- Vitamin E
- Riboflavin (B₂)
- Niacin (B₃)
- Beta-carotene
- Lutein
- Zeaxanthin
- Calcium
- Chromium
- Phosphorus
- Iron
- Manganese
- Potassium
- Zinc
- Copper
- Magnesium

Rich in antioxidants

In adding to being a good source of protein, iron and fibers, black rice is especially high in several antioxidants. They're important, as oxidative stress has been associated with an increased risk of several chronic conditions, including heart disease, Alzheimer's, and certain forms of cancer. Although being less popular than other rice varieties, research shows that black rice has the highest overall antioxidant capacity and activity.

Naturally gluten-free

Gluten is a type of protein found in cereal grains, such as wheat, barley, and rye. People with celiac disease want to avoid gluten, as it triggers an immune response in the body that damages the small intestine. Gluten can also cause negative gastrointestinal side effects, such as bloating and abdominal pain, in individuals with gluten sensitivity. While many whole grains contain gluten, black rice is a nutritious, naturally gluten-free option that can be enjoyed by those on a gluten-free diet.

Conclusion

Black rice is a carbohydrates-rich with abundant proportion of antioxidants, fibre, vitamins and minerals. Although black rice is now revealing its real colors when it comes to preventing and treating life-threatening diseases such as cancer, diabetes, dermatitis, asthma, etc. Black rice consumption and production can boost up both health concerns as well as the overall economic status for a developing country. Introduction of better post-harvest technologies is a must for upliftment of trade in black rice production and cultivation.