

Black Rice

Kavita Rani^{1*} and Reenu²

Department of Genetics and plant breeding, CCS Haryana Agricultural University, Hisar (Haryana), India

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Introduction

Rice is a major cereal food crop and staple food in the world. India stands second in the production and productivity of rice next to China. Mostly white rice is consumed by the people around the world but some specialty rice cultivars are also cultivated which include the pigmented and aromatic rice cultivars. The nutritional value of this type of rice is high when compared to the white rice.

History and origin of black rice

The origins of black rice have not been clear because of its long history. Black rice cultivars are scattered throughout Asia. However, most cultivated rice species produces white grains, and the wild relative produce red grains. In general by natural mutation it is held that the old known varieties originally appeared in ancient China and what is now Vietnam. The Chinese people were undoubtedly the first to cultivate the black rice and realize its true value.



Fig 1 : Black Rice



However, recently genome sequencing has determined that all of the modern cultivars of black rice are go down from single Japanese rice.

Why black rice is called forbidden rice

Black rice also called "Forbidden" or "Emperor's" rice, it was reserved for the Emperor in ancient China and used as a tribute food. In the time since, it remained popular in certain regions of China and recently has become prized worldwide for its high nutritional value. It was literally forbidden for anyone else to consume. Black rice still rarer because of its low yield (about 10%) and it is true that it's been used for hundreds of years for medicinal purpose in China makes this rice special.

Breeding and genetic basis of Black rice

The pigmented rice, which usually gets its colour due to the deposition of anthocyanin pigments in the outer bran layer of the grain and which is rich in photochemical and antioxidants. In Japan Researchers from two institutions i.e. National Institute of Agro biological Sciences and Forestry and Fisheries Research Center, in collaboration examine the genetic basis of black color in rice grain. They discovered black color trait is due to a rearrangement in a gene called Kala4, which activates the biosynthesis of anthocyanins and this rearrangement must have originally occurred in the tropical *japonica* subspecies of rice and this trait was then transferred into other rice varieties by crossing.

How is black rice grown?

Production system of black rice is same as Asian rice production system with the exception that direct seeding of rice is rarely used. Because of its low productivity black rice seeds are pampered, tenderly germinated and the seedlings are only transplanted to the carefully prepared rice fields when conditions are near perfect. The soil is first tilled to control weed and simplify the planting process. Then the rice paddies are flooded and due to the delicate nature of the seedlings of black rice hand planting is done in a traditional manner. Once black rice is planted, regulating the irrigation it receives is critical. Most farmers maintain flooded fields until harvesting time. Some in dryer regions resort to a flood and dry method because they have no alternative. Harvesting by machines is rarely done and in the interest of conserving every grain. Black rice is normally harvested by hand with every stalk being cut and then bundled them.



Fig 2 : Field of Black Rice

Health benefits of black rice

- ✚ **Rich in antioxidants:-** Amount of antioxidants is higher in black rice than white rice. Anthocyanin protects peoples from cardiovascular diseases. It is also reduce inflammation and improve brain function.
- ✚ **2. Good source of fiber:-** Three grams quantity of fiber is present in every each cup of black rice. The rich fiber content prevent constipation, diarrhoea, and bloating and also helps regulate bowel movements.
- ✚ **3. Prevents the risk of obesity:-** Black rice is the smarter option to fight the obesity. Because of black rice is rich in fiber, it prevents overeating and giving the feeling of full being.



- **Fig 3 : Health benefits of black rice**

- ✚ **4. Works as a natural detoxifier:** - Black rice is a rich source of phyto nutrients which is act as natural detoxifier. It helps to avoid several diseases and also removes disease-causing free radicals from the body.
- ✚ **5. Improves heart health:** - Black rice contains high amount of fiber which is help to remove excess cholesterol and lower blood pressure. Low quantity of fat and cholesterol significantly helps in preventing heart diseases. As we understand the nutritious benefits of black rice for our body, it is highly recommended for consumption as well.

