

Black wheat: A Potential Miracle Food grain for Future of Agriculture

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Introduction

The population is increasing at an alarming rate day by day and to mitigate the hunger need of population, farmers are applying large amount of chemicals, pesticides in soil that leads to decrease in yield of crops, pollution to soil and environments with destruction of soil health. Wheat (*Triticum aestivum*) is considered one of the oldest cereals cultivated and as well as consumed from centuries all over the world.



Fig-1: Black wheat grains

It is the second most stable crop after rice covering an area of nearly 30mha in India. It also ranks second in area and production in world after rice. Now a days, different types of colored wheat has gained more importance and can fight against various diseases as well as against malnutrition.

Black wheat is also a variety of pigmented wheat which is developed by crossing purple and blue wheat, named as 'Nabi MG' at National Agri-Food Biotechnology Institute (NABI), Mohali; by applying routine plant breeding method. It has the permission for human consumption by Food safety and standards authority of India (FSSAI) in June 2018. The black colour persistency is due to the pigment anthocyanin content present in the outer layer of wheat grain. Black wheat has qualities like higher protein content, dietary fiber, vitamins, minerals, calcium, flavonoid and phenolic content, compared to conventional yellow wheat and has immense biological value and is proven to have health improving food supplement. It has more pronounced ability to combat and solve global and national challenge of malnutrition.

Benefits of black wheat:

- **Highly Nutritious:** On an average, black wheat bread contains around 300 cal energy, 53 g carbohydrate, 6g of fat and 9g of protein per 100gm of serving on plate. Black wheat chapatti is best option for people who are allergic to wheat and suffering from digestive disorders because wheat protein 'glutein' triggers inflammation affecting soft tissue and organs of a body.
- **Stress Reducing:** Stress is very much bad for health point of view and medications reduce life span of human being. Black wheat is like a boon for people suffering from stress and can be a healthy diet.
- **Controls Obesity and improves metabolism:** Many researchers have found very interesting results of black wheat in controlling obesity due to its multiple health related benefits. The metabolism is faster and in good rate by consuming black wheat.
- **Cure for Cancer:** In world no cure for cancer is available but black wheat helps in rejuvenating the affected cancer cells and considered to be best food supplement for cancer. It also inhibits the tumor formation in body.
- **Controls Diabetes and prevents asthma:** Black wheat has other benefits as it can control blood sugar in our body and maintain the balance of hormones thus reduce or control the diabetics. It also prevents asthma disease development in children.
- **Value addition:** Various black wheat flour products can be made such as chapattis, biscuits, cookies, and breads.
- **High market value:** Due to its different medicinal qualities it has got a high market value. Seeds cost nearly Rs 100-170 per Kg, its flour nearly Rs 600/Kg etc.

Black wheat status in India:

Many farmers who are familiarized with the importance of black wheat have initiated cultivating in several states of India such as Punjab, Haryana, Uttar Pradesh, Chhattisgarh, Maharashtra, Madhya Pradesh and Bihar. During 2018-19, total area under black wheat cultivation was nearly about 700 acres. Madhya Pradesh is the leading producer of common as well as of black wheat and cultivating about more than 300 acres of land in current time period. The black wheat seed are not available in market but one can get it from NABI or farmers who have cultivated in previous season. It has fetched higher price value due to its multipurpose health benefits.

Black wheat status in Odisha:

Famous Botanical scientist, Dibyraj Beriha of Sambalpur has successfully initiated cultivation of black wheat for the first time in Odisha. He had purchased the seeds from the Punjab University of Agriculture and had come out successfully in its field trial. He had cultivated this for its medicinal quality as well as due its high demand and high market value.

Constraints in black wheat production:

- Low yielding and gives lower productivity (i.e., 45-50 q/ha) as compared to common wheat which gives 55-60q/ha of grain yield.
- Unavailability of seeds and lack of technical knowledge.

- Due to lack of awareness among people about black wheat and its nutritional as well as health benefits.

Conclusion:

Black wheat is one of the varieties of wheat which is most nutritious and healthier grain due to presence of different pigment compounds compared with the common wheat grain. Black wheat has been emerged as miracle food grain due to its rich nutrient contents, proteins, minerals, rich dietary fibres, other health benefits such as control obesity, diabetics, diet for cancer diseases. It also enhances immunity in human being which can be an excellent diet for recent covid 19 patients. Black wheat should also be added in the food chain of National Nutrition Mission (NNM) or 'Poshan Abhiyaan' in developing and fulfilling the nutritional status of young children, adolescent girls and women. It is also helpful in tackling malnutrition and maintaining nutritional security of our nation. Government should create awareness; provide skills and inputs to the farmers for black wheat cultivation and ensuring a better future of humanity.

