

1. What is black rice? What are its benefits? Why was it in news recently?**Approach**

Simply start with writing about the black rice. And highlight its different health benefits. In later part highlight the reason why black rice was in news then write about benefits to farmers and market situation before a conclusion.

Introduction

Black rice is a range of rice types of the species *Oryza sativa*, some of which are glutinous rice. Black rice has a deep black colour and usually turns deep purple when cooked. Its dark purple colour is primarily due to its anthocyanin content, which is higher by weight than that of other coloured grains.

Body

Health benefits of black rice:

- Multiple properties: Black rice reportedly contains a compound called ‘anthocyanins’, responsible for its black colour and grants its powerful anti-inflammatory, antioxidant, and anti-cancer properties.
- As natural detoxifier: Moreover, it is also naturally gluten-free and rich in protein, iron, vitamin E, calcium, magnesium, natural fibre, hence promoting weight loss. It is known to be a natural detoxifier and its consumption helps in prevention of ailments such as atherosclerosis, diabetes, Alzheimer’s, hypertension, among others.
- 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.
- 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 value and boost energy: Black rice is rich in amino acids, fatty acids, antioxidants, 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.
- Preventing Risk of Obesity: For people battling obesity, black rice is the best variant of rice to consume. Full of fibre, black rice not only gives you the feeling of being full, thus preventing overeating; studies show that the rice variant can also help prevent insulin resistance, which is often linked to the risk of developing diabetes and obesity.

Recently in news due to:

- Chandauli in UP is one of India's four most progressed districts since the beginning of Aspirational Districts Programme, according to the UNDP latest appraisal report. Among the best practices that pushed Chandauli's progress was the black rice experiment in the district.
- Chandauli started producing the 'healthier' black rice since 2018. This commodity is now being exported to Australia and New Zealand, with options of other countries also being explored. The project is being seen as a huge success due to high demand and good profit margin on black rice in global markets.
- Moreover, its cultivation has been promoted under various schemes of the UP government, such as 'One District-One Product' and 'Export Policy 2020-25'. These schemes aim at doubling farmers' income and increasing exports from various sectors including agriculture.
- With superfood tag and numerous health benefits, black rice has replaced the demand for white and even brown rice among health-conscious customers across the globe, especially in countries like the US, New Zealand, Australia, and the UK.
- However, despite high returns, farmers in Chandauli are facing the problem of marketing black rice due to non-availability of its GI (geographical indication) tag to the region. Manipur was awarded the GI tag for black rice last year.

A increase in returns to farmers against conventional rice cultivation:

- The price of black rice paddy is around Rs 80-85/kg, which is over four times the Grade A paddy MSP of Rs 19.6/kg.
- Moreover, the price of processed black rice is at Rs 160, which is further sold for around Rs 200-500/kg. This makes black rice cultivation a lucrative proposition despite complications like being completely organic and labour-intensive.

Conclusion

Rice is the most important food crop of the developing world and the staple food of more than half of the world's population. The more diverse rice we add in our food choices, the better it is for the farmers, our health and the environment. It is our social responsibility to eat right, eat seasonal and eat what is locally available.

2. What are the essential components of Environmental Impact Assessment (EIA)? What are the existing guidelines regarding EIA in India? Don't you think the protestors against ongoing developmental projects need to be sensitised regarding EIA reports? Comment.

Approach

Start with definition of the EIA, candidate can also start with the evolution of EIA in India. Then highlight the essential components on which assessment is build. Try to write existing guidelines and then address the issue of awareness of protestors in balanced approach.

Introduction

UNEP defines Environmental Impact Assessment (EIA) as a tool used to identify the environmental, social and economic impacts of a project prior to decision-making. It aims to predict environmental impacts at an early stage in project planning and design, find ways and means to reduce adverse impacts, shape projects to suit the local environment and present the predictions and options to decision-makers.

Body

EIA report contains following components:

1) Environmental Baseline Study –

- Survey of flora and fauna clearly delineating season and duration. It looks into the following components of the environment: Air environment, Noise, Water, Biological, Land.
- Study of existing ground and surface water resources.
- Determination of impact zone.

2) Environmental Assessment –

- Assessment of potential damage to terrestrial and aquatic flora and fauna due to discharge of effluents and gaseous emissions from the project.
- Estimation of impacts of project on land use, landscape, topography, drainage and hydrology.
- Assessment of impact on significant historical, cultural and archaeological sites/places in the area.
- Delineation of mitigation measures to prevent and / or reduce the damage.

3) Environmental Impact Statement –

- It is the summary of findings of the above two components and includes Environmental Management Plan.
- Delineation of mitigation measures including prevention and control for each environmental component and rehabilitation and resettlement plan.
- Delineation of monitoring scheme for compliance of conditions.

Existing guidelines regarding process of EIA:

- Screening: The project plan is screened for scale of investment, location and type of development and if the project needs statutory clearance.

- Scoping: The project's potential impacts, zone of impacts, mitigation possibilities and need for monitoring.
- Collection of baseline data: Baseline data is the environmental status of study area.
- Impact prediction: Positive and negative, reversible and irreversible and temporary and permanent impacts need to be predicted which presupposes a good understanding of the project by the assessment agency.
- Mitigation measures and EIA report: The EIA report should include the actions and steps for preventing, minimizing or by passing the impacts or else the level of compensation for probable environmental damage or loss.
- Public hearing: On completion of the EIA report, public and environmental groups living close to project site may be informed and consulted.
- Decision making: Impact Assessment Authority along with the experts consult the project-in-charge along with consultant to take the final decision, keeping in mind EIA and EMP (Environment Management Plan).
- Monitoring and implementation of environmental management plan: The various phases of implementation of the project are monitored.
- Assessment of Alternatives, Delineation of Mitigation Measures and Environmental Impact Assessment Report: For every project, possible alternatives should be identified, and environmental attributes compared. Alternatives should cover both project location and process technologies.
- Once alternatives have been reviewed, a mitigation plan should be drawn up for the selected option and is supplemented with an Environmental Management Plan (EMP) to guide the proponent towards environmental improvements.
- Risk assessment: Inventory analysis and hazard probability and index also form part of EIA procedures.

Protesters along with government needs to be sensitised:

- For example the "Save Mollem" campaign says infrastructure projects are threatening an ecologically rich national park in India's western state of Goa.
- NGOs, civil society groups and local communities need to build their capacities to use the EIA notification towards better decision making on projects.
- It has been found that the team formed for conducting EIA studies is lacking expertise in various fields such as environmentalists, wildlife experts, Anthropologists and Social Scientists therefore its two way process to enhance capabilities.
- Citizen should be able to access the authority for redressal of all violation of the EIA notification as well as issues relating to non-compliance.
- The reduced notice period for public hearing from 30 days to 20 days will only make it difficult to study the draft EIA report, more so when it is not widely available or provided in the regional language.
- Moreover, the reduction of time would particularly pose a problem in those areas where information is not easily accessible or areas in which people are not that well aware of the process itself.

- The ministry, instead of reducing the time for public consultation, should focus on ensuring access to information as well as awareness about the public hearing and its impact upon the whole EIA process.

Conclusion

There is a need to strengthen the implementation of EIA, Independent EIA Authority is required for fair and objective decisions. EIA should formulate a transparent, decentralised and efficient regulatory mechanism to integrate environmental concerns into developmental process with a view to facilitating sustainable development.



3. What are white foods? What are the health concerns related to white foods? Discuss.

Approach

Start with basic background and explain the growth of white foods, then properly define white foods. Highlight the health issues around the white food products and also give alternative view on white food before a conclusion.

Introduction

White foods essentially, "bad carbs" like sugar and baked goods made with white flour have been fingered as a culprit in India's obesity epidemic. The consumption of white foods has increased manifold among Indians in recent times. India's bakery market is expected to grow 8.5% to reach more than \$12 billion by 2026. But evidence is also building up against refined foods as producing more harm than good.

Body

White foods:

- White foods are those that are processed and refined, like refined wheat flour, white rice, white bread, white pasta, and simple sugars like white refined sugar, honey, and high fructose corn syrup.
- Bakery and condiment industries, which use refined wheat flour and white sugar as main ingredients, have grown exponentially.

It has several health impacts:

- Refined bread flour is obtained by processing whole grain removing fibre dense bran and germ of the grain. These parts contain most of the vitamins and minerals too. The resultant product lacks nutritional value and is associated with weight gain, glucose intolerance, and heart diseases, many research studies have shown.
- Refined sugar provides 'empty calorie' in the form of simple glucose and no other nutrients. Simple glucose gets absorbed in the bloodstream very quickly and raises blood sugar that leads to glucose intolerance, obesity, type 2 diabetes, heart diseases, some forms of cancer, non-alcoholic fatty liver disease, depression, and dementia among others.
- A 2015 cohort study involving around 2,600 participants observed that regular sugar-sweetened beverage consumption was associated with higher risk of non-alcoholic fatty liver disease, particularly in overweight and obese individuals.
- A large study involving around 4,35,000 participants showed that sugars were directly associated with greater risk of esophageal adenocarcinoma, small intestine cancer and pleural cancer.
- Known as 'White poison', white flour is becoming necessity for all of us but it impacts our health drastically. Use of Maida & its products usage is increasing rapidly in our day-to-day life. Sometimes, we are consuming it in form of bread

at our home and sometimes, in the market/food joints in form of fast foods. As all necessary nutrients are lost during processing of Maida, foods made from it utilize nutrients from the body for absorption. As a result, our body gets depleted of vitamins and minerals.

- Everybody's favourite sabzi has an evil side, which has bigger health implications that just weight gain. White potatoes are starchy and are on the carb-heavy side. Problem is that potatoes are enjoyed either deep fried or mashed with butter and cream, both of which can cause health hazards. Deep fried potatoes have been linked to cancers and increased risk of type 2 diabetes.
- Along with pink, blue, and black salts, white table salt is essential to health. But it produces negative health outcomes such as high blood pressure, chronic kidney disease, and osteoporosis when consumed in excess. Almost all processed and packaged food products like chips, crackers, and wafers use salt as a preservative.
- White rice is the polished and refined form of whole grain – lacks fiber, protein, vitamins, and minerals. White rice is not a bad food unless consumed in large quantities. However, it doesn't provide any vital nutrients except simple glucose. White rice produces the same health outcome as refined wheat flour.

Not all white foods are bad Some white foods are beneficial for overall health:

- The only white foods we should avoid are processed, refined ones. Few examples include cauliflower, onion, garlic, radish, mushroom, cashews, sesame seeds, white beans, white fish, lean chicken, low fat milk, unsweetened yogurt, white eggs, and coconut meat are good for health.
- The standard guideline while making food choices for a healthier lifestyle shouldn't be dependent solely on colour because nutrition value is independent of colour.

Promoting super foods for improving nutritional value:

- Millets, the tiny grains that once adorned Indian kitchens disappeared somewhere in the 80s. Millets are often referred to as Superfood and its production can be seen as an approach for sustainable agriculture and a healthy world.
- Multidimensional benefits associated with millets can address the issues related to nutrition security, food systems security, and farmers' welfare.
- They are not only important for the healthy growth and development of children but have also been shown to reduce the risk of heart disease and diabetes in adults.
- The Ministry of Women and Child Development has been working at the intersection of agriculture and nutrition by setting up nutri-gardens, promoting research on the interlinkages between crop diversity and dietary diversity and running a behaviour change campaign to generate consumer demand for nutri-cereals.

Conclusion

There is a need to change the general perception around consumption and trade point of view associated with low cost nutritional foods and to re-brand coarse cereals/milletts as nutri-cereals. Further, civil society can begin the jan andolan by taking small steps towards choosing healthier foods, which are good for the environment and bring economic prosperity to our farmers.

