



Fortification of Rice

For Prelims: Sickle-cell anaemia, Thalassemia, FSSAI

For Mains: Issues with Fortification of Food and way ahead

Why in News?

According to the recent findings, the Union government's plan to **distribute subsidised iron-fortified rice may do more harm than good to Adivasis, or indigenous populations**, who suffer from [sickle-cell anaemia](#) and [thalassemia](#) and are genetically prone to these ailments.

What is Food Fortification?

- **Fortification:**
 - Fortification is the **addition of key vitamins and minerals** such as iron, iodine, zinc, Vitamin A & D to staple foods such as rice, milk and salt to improve their nutritional content.
 - These nutrients may or may not have been originally present in the food before processing.
- **Fortification of Rice:**
 - According to the Food Ministry, **fortification of rice is a cost-effective and complementary strategy** to increase vitamin and mineral content in diets.
 - **According to FSSAI norms**, 1 kg fortified rice will contain iron (28 mg-42.5 mg), folic acid (75-125 microgram) and Vitamin B-12 (0.75-1.25 microgram).
 - In addition, **rice may also be fortified with micronutrients**, singly or in combination, with zinc, Vitamin A, Vitamin B1, Vitamin B2, Vitamin B3 and Vitamin B6.

What is the Need of Food Fortification?

- **India has very high levels of malnutrition** among women and children. According to the Food Ministry, every second woman in the country is anemic and every third child is stunted.
- India has slipped to **101st position in the [Global Hunger Index \(GHI\) 2021](#)** of 116 countries, from its 2020 position of 94th.
- The deficiency of micronutrients or micronutrient malnutrition, also known as “hidden hunger”, is a serious health risk.
- **Rice is one of India's staple foods**, consumed by about two-thirds of the population. Per capita rice consumption in India is 6.8 kg per month. Therefore, fortifying rice with micronutrients is an option to supplement the diet of the poor.

What are the Issues with the Fortification of Rice?

- **Inconclusive Evidence:**
 - Evidence supporting fortification is **inconclusive and certainly not adequate** before major national policies are rolled out.
 - Many of the studies which FSSAI relies on to promote fortification are **sponsored by food**

companies who would benefit from it, leading to conflicts of interest.

▪ **Hypervitaminosis:**

- According to some studies published in the medical journal Lancet and in the American Journal of Clinical Nutrition which show that both anaemia and Vitamin A deficiencies are overdiagnosed, meaning that mandatory fortification could lead to hypervitaminosis.
 - Hypervitaminosis is a condition of abnormally high storage levels of vitamins, which can lead to various symptoms such as over excitement, irritability, or even toxicity.

▪ **Toxicity:**

- One major problem with chemical fortification of foods is that **nutrients don't work in isolation but need each other for optimal absorption.**
- Undernourishment in India is caused by monotonous cereal-based diets with low consumption of vegetables and animal protein.
- **Adding one or two synthetic chemical vitamins and minerals will not solve the larger problem,** and in undernourished populations can lead to toxicity.
- A **2010 study that showed iron fortification causing gut inflammation** and pathogenic gut microbiota profile in undernourished children.

▪ **Cartelisation:**

- Mandatory fortification **would harm the vast informal economy of Indian farmers and food processors** including local oil and rice mills, and instead benefit a small group of multinational corporations who will have sway over a Rs.3,000 crore market.

▪ **Decrease Value of Natural Food:**

- Dietary diversity was a **healthier and more cost-effective way to fight [malnutrition](#).**
- **Once iron-fortified rice is sold as the remedy to anaemia,** the value and the choice of naturally iron-rich foods like millets, varieties of green leafy vegetables, flesh foods, liver, to name a few, will have been suppressed by a policy of silence.

Way Forward

- The **right to informed choices about one's food is a basic right.** The right to know what one is consuming is also a basic right. In the case of rice fortification, it is seen that no prior informed consent was ever sought from the recipients.
- There is a **need for precision because no nutrient taken in excess will do you good.**
 - Universal fortification is not the answer for nutrition deficiencies.

[Source: TH](#)

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