Aflatoxin-M1 in Processed Milk

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Recently the **Food Safety and Standards Authority of India (FSSAI)** has tested different types of milk (raw and processed of various types) samples under the National Milk Safety and Quality Survey 2018.

- This is the first-of-its-kind comprehensive survey FSSAI has conducted **through a third-party agency.**
- The survey was conducted from May 2018 to October 2018 covering all states and UTs.
- It covered both organised (retailers and processors) as well as non-organised (local dairy farms, milk vendors and milk mandis) sectors.

Findings of the Study

- About 93% of the milk samples tested were found to be safe for consumption. Remaining 7% were found to have the presence of contaminants such as Aflatoxin-M1, pesticides and antibiotics.
- Contrary to common perception, the study shows that contamination was a more serious problem than adulteration.
    - **Chemical contaminants** in milk comprise chemical hazards that may be introduced during milk production, dairy processing or packaging.
        - Veterinary drugs, heavy metals, radionuclides, mycotoxins and pesticides are chemical contaminants that can enter to animal feed and thereby in milk.
        - The most common contaminant in milk is antimicrobial drugs.
    - **An adulteration** is an act of intentionally degrading the quality of food either by the admixture or substitution of inferior substances or by the removal of some valuable ingredient.

- The problem of Aflatoxin-M1 was found to be more dominant in processed milk than raw milk.
    - Aflatoxin-M1 comes in the milk through feed and fodder which are currently not regulated in the country.
    - Tamil Nadu, Delhi and Kerala were the top three states where Aflatoxin residue was found the maximum.
- In terms of quality, the survey found that 37.7% of the total sample of processed milk did not comply with quality parameters because the presence of contaminants such as **fats, SNF (solids not fat), Maltodextrin and sugar** was above the permissible limits.
- Adulteration was found in only 12 of the total samples surveyed with a maximum reported in Telangana, followed by Madhya Pradesh and Kerala.

Aflatoxin-M1

- Aflatoxins are toxins produced by **certain fungi** which are generally found in agricultural crops like maize, peanuts, cotton seed and others. They are **carcinogenic in nature.**
- According to a **World Health Organization (WHO)** study, consumption of food containing aflatoxin concentrations of one milligram per kilogram or higher has been suspected to cause aflatoxicosis, the outcome of which consists of acute liver failure, jaundice, lethargy and nausea, eventually leading to death

    The exposure to AFM1 from milk causes **stunting among children.**

Stunting

- It is the impaired growth and development that children experience from **poor nutrition, repeated infection, and inadequate psychosocial stimulation.**
- Children are defined as stunted if their height-for-age is more than two standard deviations below the WHO Child Growth Standards median.
- In India, **38% of children younger than five years of age** are stunted, a manifestation of **chronic undernutrition.** Stunting and other forms of under-nutrition are responsible for nearly half of all child deaths globally.

Source: HBL