INTRODUCTION

Studies on Aflatoxins in Milk and Milk Products
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The harmful effects of some fungi as producers of toxins were recognised during the year 1960-61 when in England, more than 100,000 turkey pullets fed on Brazilian peanut meal died within a few months. Similar disease outbreaks were also encountered in ducklings and pheasants. The cause of such outbreaks was eventually traced to a toxic factor produced by the very common mold, *Aspergillus flavus* and the toxigenic agent was thereafter, designated as "aflatoxin".

Aflatoxins are now recognised as a closely related group of secondary metabolites of fungi. They are highly oxygenated heterocyclic compounds and have been further characterized as aflatoxin B₁, B₂, G₁, G₂, B₂a and G₂a. Hydroxylated derivatives of aflatoxin B₁ and B₂ are now designated as M₁ and M₂, since these were first detected in milk produced from cows fed on aflatoxin containing diets.

Production of aflatoxin is not restricted to *A. flavus* alone. Several other *Aspergillus* species, such as *A. parasiticus, A. niger, A. ruber, A. wentii, A. oryzae, A. ochraceus* etc. are also reported to produce aflatoxins. Other fungi like *Penicillium, Rhizopus, Mucor* and *Streptomyces* have also been regarded as aflatoxin producers, although confirmatory studies on this aspect are lacking.
The ubiquitous nature of aflatoxin producing fungi is further reflected in the frequent occurrence of aflatoxins in a wide variety of agricultural products. However, it has been observed that all molds need not necessarily be aflatoxin producers. Further, it has also been noted that the mere presence of such molds in a substrate need not always result in aflatoxin production.

It is now well established that cows consuming feeds contaminated with aflatoxin A$_1$ and B$_2$, excrete aflatoxin M$_1$ and M$_2$ in milk. Detailed studies on aflatoxins have shown that aflatoxin M$_1$ is as toxic as B$_1$. The toxic properties of aflatoxin depends, however, on the test system, the dosage of the toxic material as also the duration of exposure. Bile duct hyperplasia is the most characteristic pathological change brought about by aflatoxins in many animals. Among all the aflatoxins that have been studied, aflatoxin A$_1$ has been thoroughly investigated and it has been considered to be a very potent carcinogen, apart from its mutagenic and teratogenic characteristics (Legator, 1966).

There are no direct reports on the effect of aflatoxins on human beings. However, on account of the susceptibility of several animal species to the toxicigenic effects of aflatoxins, it is believed that human beings are also susceptible to the action of aflatoxins. Further, human beings are likely to ingest aflatoxin from a variety
of contaminated food materials including milk and milk products and hence, aflatoxin should be regarded as a potential public health hazard.

In view of the above observations and also on account of the limited information available on occurrence of aflatoxin in milk and milk products in India, the following aspects have been taken up for further study.

1) Examination of milk and milk products for possible presence of aflatoxins.
2) Isolation and screening of mold cultures for aflatoxin production.
3) Experimental production of aflatoxin in 
4) Partitioning studies of aflatoxin M1 in milk during acid and culture curdling.
5) Partitioning studies of aflatoxin M1 in milk during curdling with milk clotting enzymes from different sources.
6) Effect of heat on aflatoxin M1 in milk.
7) Effect of aflatoxin B1 on selected lactic cultures.