THE ROLE OF EPIDEMIOLOGICAL AND CLINICAL STUDIES IN THE EVALUATION OF AFLATOXIN HEALTH RISKS IN SEAMIC COUNTRIES

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The tropical climatic conditions of high temperature and humidity levels in the Southeast Asian region favor fungal growth and predispose food and other agricultural commodities to mycotoxin contamination. Mycotoxins are a group of metabolites produced by some strains of fungi which are considered to be highly toxic and potent among the increasing number of carcinogens. The mycotoxin problem becomes even more apparent and alarming since majority of the Asian countries are traditionally of agricultural-based economies. In terms of health and nutrition aspects, ill effects can occur in humans because of exposure to mycotoxins through dietary intake either from food crops (direct intake) or from animal tissues or products of animals that have ingested mycotoxin-contaminated feed (indirect intake).

Among the mycotoxins, the aflatoxins and their toxicity and carcinogenicity on the mammalian species are the most documented. (2-4) In humans, epidemiological studies in Africa (5) and to a limited scale the Philippines (6) have shown that increased exposure to aflatoxins may increase the risk of primary liver cancer. The possibility that Hepatitis B virus (HBV) infection may confound the relationship between aflatoxin and liver cancer incidence has also been considered.

With the aflatoxin problem present in the ASEAN region, epidemiological and clinical studies which are aimed to assess the relationships between aflatoxin and food consumption among population groups as well as other factors need to be carried out. The information derived from these studies will help provide scientific basis for any regulatory measures that will eventually be adopted for recommending grades/standard levels for aflatoxin in food and feed commodities as well as basis for dietary modifications to reduce the effects of the toxin.

A research survey on the state of the art on aflatoxin health risks undertaken in five SEAMIC countries visited, namely; Philippines, Singapore, Malaysia, Thailand and Japan have shown concern and interest both on the problem of aflatoxin in foods, feeds and other agricultural products as well as its possible implications to human and animal health.

Singapore and Japan being industrialized countries are not exempted from the aflatoxin problem because they still import commodities from other countries where there is a high level of aflatoxin contamination. Liver cancer ranks third among males in both countries and though direct evidence linking aflatoxin consumption with this disease is still lacking, the possibility cannot be excluded that the presence of this toxic metabolite constitute a hazard to human health.

Philippines, Malaysia and Thailand are all agricultural countries where their main concern would not only be on the health implications but also on aflatoxin detection, prevention and control. Aflatoxin contamination has serious economic repercussions for these countries but they cannot impose a more stringent limit for aflatoxin contamination levels in foods since a strict implementation would exclude more than half of the food materials available to the people in these countries.

Epidemiological and clinical studies conducted in Malaysia, Singapore and Japan were mostly preliminary surveys on aflatoxin exposure while those in the Philippines and Thailand were com-
prehensive epidemiological studies on dietary aflatoxins and human liver cancer.

Despite controversies between the relationships of aflatoxin and HBV infections, some researchers believe that there is a synergistic effect between AFB1 and HBV in causing primary hepatocellular carcinoma. With both factors present in the Southeast Asian countries visited including Japan, more research should expound on the multifactorial theory of hepatocarcinogenesis.

REFERENCES