GENERAL INTRODUCTION

Human food commodities and animal diet products are regarded hazardous to both human and animal health, when proved to be potential sources of fungal pollution.

Poultry are known to be one of the major protein sources in Egypt. Accordingly, poultry breading has become one of the most important economic industries, this industry is contending with serious sanitation problems and shortage of production facilities. These factors are considered as obstacles for increasing population densities of chicks. Fungal examinations have demonstrated considerable contamination of various poultry diet components. These findings are very likely related to diseases which are found in poultry as well as mankind who consume contaminant products or may work in the poultry diet industry or chicken farms.

It has been established that certain diet ingredients are still produced under primitive conditions in Egypt, as in some areas of the world, being heavily contaminated with enteropathogenic and enterotoxinogenic organisms. The most important poultry diet components (dried fish powder, blood, bones and corn powder) are contaminated with some harmful fungi. These components act as vehicles in the transmission of these harmful fungi from slaughter houses and hence to meat and poultry.

Organic particles and spores of actinomycetes, bacteria and fungi are almost always present in air and air-dust particles (Hyde & Williams, 1949; Richards, 1956; Kramer *et al.*, 1960; Gregory, 1973; Lacey, 1975; Holtmeyer & Wallin, 1981; Abdel-Hafez & Shoreit, 1985a and Abdel-Hafez *et al.*, 1986), but their concentrations can be affected by many farm operations (Lacey & Lacey, 1964 and Purchase, 1974) and by handling and processing of food and feed after harvest (Baruch, 1961 and Lacey, 1971 & 1975) and by environmental factors (Abdel-Fattah *et al.*, 1981 and Moubasher *et al.*, 1981a&b).

Surveys of the air spora at different parts of the world are receiving their importance from several aspects. Many of the major fungal diseases of plants such as cereal rusts, mildews, potato blight and some cereal smuts are spreaded by air-borne spores (Beer, 1969). The deterioration of stored food is induced by the growth of moulds reach to them from the air (Richmond *et al.*, 1962).

Air and air-dust particles carry some pathogenic fungal spores, some of them incite allergic diseases of the respiratory tract as hay fever and asthma (Gross, 1974).

Aflatoxins belong to the group of difuranocoumarins and are produced particularly by *Aspergillus flavus* and other fungi. These fungi frequently contaminate animal and human

foods which have been stored under poor conditions. Aflatoxins have been found to be carcinogenic, teratogenic and mutagenic to several species of experimental animals (Butler & Barnes, 1968; Gopalan *et al.*, 1972 and Adamson *et al.*, 1973). There are several different types of aflatoxin. Aflatoxin B_1 is the most toxic one because of its central role in the detoxification of metabolic byproducts. The liver is the particular vulnerable organ to any form of toxeamia. Aflatoxin B_1 is the most potent hepatocarcinogenic agent so far recognized (Wogan & Newberne, 1967). It is suspected of being a primary cause of human cancer in certain areas in Africa, South China, Hawai, India and Romania (Newberne & Rogers, 1973).

The contamination of foodstuffs by aflatoxins is a world-wide problem (Edds, 1973) and has been found in groundnut meal, wheat, rice, soybean, maize, bread, milk and cheese (Svoboda *et al.*, 1966). This toxin may make the liver more susceptible to damage by bilharzia (Anthony, 1977). It also contributes to the development of a pre-cancerous state and to hepatic carcinoma in many different species including molluscs, fish, birds, mammals and man (Salmon & Newberne, 1963). Animals vary somewhat in their susceptibility to aflatoxin. The following order shows a progressive increase in resistance according to the LD50: ducklings and rabbits (the most sensitive), piglet, cat, pig, dog, turkey, guinea

pig, rat, mouse, hamster, chicken and sheep (Newberne & Butler, 1969).

The toxic effect of aflatoxin was first recognised in Great Britain in 1960 when it caused the death of large number of turkeys.It was therefore called "Turkey X-disease" (Blount, 1961 and Miller *et al.*, 1982).