1. INTRODUCTION

Corn (*Zea maize* L.) is the most important crop grain allover the world. It has three possible uses: as human food, as feed livestock and as raw material for industry. As a food, the whole grain, either mature or immature, may be used; or the corn may be processed by dry milling techniques to give a relatively large number of intermediary products, such as corn grits of different particle size, corn mail, corn flour and flaking grits. These materials in turn have a great number of applications in a large variety of foods. Corn grown in substance agriculture continues to be used as a basic food crop. In developed countries more than 60% of the production is used in compounded feeds for poultry, pigs and ruminant animals. In recent years, even in developing countries in which corn is a stable food, more of it has been used as an animal feed ingredient. ”High moisture” maize has been paid much attention recently as an animal feed because of its lower cost and its capacity to improve efficiency in feed conversion.

The by-products of dry milling include the germ and the seed-coat. The former is used as a source of edible oil of high quality. The seed-coat or pericarp is used mainly as a feed, although in recent years interest has developed in it as a source of dietary fiber **(Earll et al., 1988; Burge and Duensing, 1989).**

Although the technology has been available for a long time, the increase in fuel oil prices has resulted in much research on the fermentation of corn to produce alcohol, popular in some states of North America. Fermentation also provides some alcoholic beverages. Finally, corn plant residues also have important uses, including animal feeds as well as a

number of chemicals produced from the cobs, such as furfural and xylose. These residues are also important as soil conditioners.

.There are important differences in the chemical composition of the main parts of the corn kernel. The seed-coat or pericarp is characterized by a high crude fiber content of about 87%, which is constituted mainly of hemicellulose (67%), cellulose (23%) and lignin (0.1%) **(Burge and Duensing, 1989).** On the other hand, the endosperm contains a high level of starch (87.6%) and protein levels of about 8% However, the crude fat content in the endosperm is relatively low. The germ is characterized by a high crude fat content, averaging about 33%. The germ also contains a relatively high level of protein (18.4%) and minerals. Some information is available on the chemical composition of the aleurone layer, which is relatively high in protein content (about 19%) as well as in crude fiber. The endosperm contributes the largest amount, followed by the germ, with only small amounts from the seed-coat. About 92% of the protein in teosinte comes from the endosperm. Protein in the maize kernel has been reported on by a number of researchers (e.g. **Bressani and Mertz, 1958).**

In Egypt, the cultivated area of corn grain reached about 1.8 million feddan in season 2007 (Field crop Institute, ARC, Giza, Egypt), which produced approximately 6.2 million tons of corn grain. Corn importation play an important role in the annually grain consumption where, Egypt imported about 4.4 million tons of yellow corns from different sources such as USA, Argentina and Europe for different purpose during season 2007 **(CLFF, ARC, Giza, Egypt).**

A wide variety of microorganisms are associated with grain kernels. The kinds and abundance of these microorganisms depend on factors such as climate under which the grains are produced, storage conditions, and the

portion of the grains of which the products are composed. Hence, some molds growing in some materials under some conditions can produce toxic compounds. Fungal toxins produce a wide range of injurious effects in animal, in addition to serving in as food-borne hazards to humans. The fungi that invade and damage grains and their products are divided into two general groups i.e., field or storage fungi, according to their ecological requirement where field fungi invade grains before harvest and the most common are species of *Alternaria* and *Fusarium* while storage fungi are mostly species of *Aspergillus* and *Penicillium.* These fungi are making un-desirable effects on grain quality like discoloration, reduced germination, heating, caking, mustiness, sour odors, chemical changes, loss of weight, reduction in grade and mycotoxin contamination **(FGIS, 1994)**. Meanwhile, the factors affecting mold growth are moisture content, temperature, time in storage and grain condition.

Aflatoxin a mycotoxin, widely contaminated the stored corn grain under Egyptian condition and causes a great problems to human and animals **(Eisa *et al*., 1996).** Aflatoxins are produced by mold fungi, belonging essentially to genus *Aspergillus* (*A. parasticus* and *A. flavus*, etc.)

All mentioned storage problems of corn grains which resulting from mold fungi can be controled by different such as resistant varieties, monitor grain condition, moisture level adjustment and using fungicides or mold inhibitors.

"Aim of the work"

This study aims to:

(1) Isolate and identify different storage fungi on corn grains.

(2) Study the activity of these fungi and their ability for production of mycotoxins.

(3) Study the effect of these fungi and their mycotoxins on the chemical composition of corn grain.

(4) Study the effect of *Aquilegia vulgaris L* extract for the inhibition of *Aspergillus* growth and aflatoxins production.

(5) Evaluate the safety of extract in laboratory animals.