

RESEARCH PAPER

# Study on mycoflora and aflatoxins contamination in common spices in Dharmapuri district, Tamil Nadu

G. PRABAKARAN<sup>1</sup> AND T.RAVIMYCIN<sup>2</sup>

<sup>1</sup>PG and Research Department of Botany, Government Arts College, DHARMAPURI (T.N.) INDIA

Email : [gpbitek@gmail.com](mailto:gpbitek@gmail.com); [gbbitek@yahoo.co.in](mailto:gbbitek@yahoo.co.in)

<sup>2</sup>Ecology and Environment Lab, Department of Botany, Annamalai University, Annamalai Nagar, CHIDAMBARAM (T.N.) INDIA

Email : [mycin\\_envirom@yahoo.co.in](mailto:mycin_envirom@yahoo.co.in)

Spices constitute an important group of agricultural commodities which are virtually indispensable in the culinary art. In India, some spices also possess strong anti-microbial and antibiotic activities. Samples of whole or ground black pepper from various sources yield numerous colonies of several species of *Aspergillus*. The mycoflora and mycotoxins of many agricultural products have been investigated by many researchers. The pH of the suspension was measured using a digital pH meter. Enumeration of fungal colonies in different sample Sabourauds dextrose agar (SDA) (Hi-Media) was prepared and sterilized by autoclaving at 121<sup>0</sup> C for 15 minutes. Thin layer chromatography for detection of aflatoxin. The aflatoxin were isolated and characterized after the death of more than 1,00,000 turkey poults. Among 18 different types of aflatoxins identified, major members are aflatoxin B1, B2, G1 and G2. Incidence of molds in different sample of spices showed fungal contamination with significance difference. The identified fungi assigned to 12 genera *Aspergillus niger*. These fungi are identified based on colony morphology and microscopic observation. TLC analysis of spices extracts revealed the presence of aflatoxin, once spices and food are contaminated by aflatoxins it is almost impossible to detoxify them by normal cooking methods.

**Key words :** *Aspergillus niger*, Aflatoxins, Spices, Sabouraud 's dextrose agar (SDA)

**How to cite this paper :** Prabakaran, G. and Ravimycin, T. (2012). Study on mycoflora and aflatoxins contamination in common spices in Dharmapuri district, Tamil Nadu. *Asian J. Bio. Sci.*, 7 (1) : 44 - 48.

## INTRODUCTION

Spices constitute an important group of agricultural commodities which are virtually indispensable in the culinary art. In India, spices are important commercial crops from the point of view of both domestic consumption and export. Besides, huge quantities of spices are also being consumed within the country for flavouring foods and are also used in medicine, pharmaceutical, perfumery, cosmetics and several other industries.

There are over 80 spices grown in different parts of the world and around 50 spices are grown in India. The spices that India can offer in abundant quantities are pepper, ginger, turmeric, chilli, cardamom, celery, fenugreek, fennel, cumin, dill, coriander, cinnamon, ajowan (bishop's weed), cassia, clove, nutmeg and mace. Some spices also possess strong anti-microbial and antibiotic activities. Many of them possess

medicinal properties and have a profound effect on human health, since they effect many functional processes. For instance, spices intensify salivary flow.

Fungi are the predominant contaminants of spices (Kneifel and Berger, 1994), but most such microbial populations are probably regarded as commensal residents on the plant that survived drying and storage. Most fungi are present on pepper of the post-harvest and storage type, which develop after harvest if relative humidity is not controlled during storage. Samples of whole or ground black pepper from various sources yield numerous colonies of several species of *Aspergillus* (Christensen *et al.*, 1967). The mycoflora of foods has traditionally been given considerably less attention than the bacterial flora (Kneifel and Berger, 1994; Sharma *et al.*, 1984).

Mycotoxins are secondary metabolites of mold fungi identified in many agricultural products screened for toxigenic molds (Van Egmond, 1981).