Research in Microbiology

Chief Editor
Dr. Adesh Kumar

Volume - 2

ISBN 9789353356057

₹ 634, US $12

Published by
AkiNik Publications,
#169, C-11, Sector - 3, Rohini,
Delhi-110085, India
Toll Free (India): 18001234070

AkiNik Publications

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AkiNik Publications

New Delhi

Published By: AkiNik Publications

AkiNik Publications
169, C-11, Sector - 3,
Rohini, Delhi-110085, India
Toll Free (India) – 18001234070
Phone No. – 9711224068, 9911215212
Email – akinikbooks@gmail.com

Chief Editor: Dr. Adesh Kumar

Publication Year: 2019

Pages: 226

Paperback ISBN: 978-93-5335-605-7

E-Book ISBN: 978-93-5335-606-4

Book Doi: https://doi.org/10.22271/ed.book.362

Price: ₹ 634/-

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Chapter - 2

Aflatoxins and Human Health

Dr. P.N. Rajarajan, Dr. P. Jeganathan and K. Rajeswari

Abstract

Aflatoxin is a naturally occurring Mycotoxin produced by *Aspergillus flavus* and *Aspergillus parasiticus*. *Aspergillus flavus* is common and widespread in nature and is most often found when certain grains are grown under stressful conditions such as draught. The mold occurs in soil, decaying vegetation, hay and grains undergoing microbiological deterioration and invades all types of organic substrates whenever and wherever the conditions are favourable for its growth. Favourable conditions include high moisture content and high temperature. The aflatoxin group is comprised of aflatoxin B1, B2, G1 and G2. In addition, aflatoxin M1 (AFM1), a hydroxylated metabolite of AFB1, is excreted in the milk of dairy cows consuming an AFB1-contaminated ration. Aflatoxin B1 a prototype of the aflatoxins, is widely recognized as the most potent hepato carcinogenic compound and along with other certain members of the group, possess additional toxic properties including mutagenicity, teratogenicity, acute cellular toxicity and it suppresses the immune system. Aflatoxin contamination of food and feed has gained global significance as a result of its deleterious effects on human as well as animal health. The marketability of food products is adversely affected by aflatoxin contamination.

Keywords: aspergillus, aflatoxin, mycotoxins, human health, metabolite

Introduction

Moulds are composed of long filaments called hyphae which grow over the surface and inside nearly all substances of plant or animal origin and cause them to decay. Moulds not only contaminate our air but also our food. As they grow on food, they produce enzymes that break down the food resulting to spoilage (Kung'u, 2005). Moulds derive energy from the organic matter in which they live. Typically, moulds secrete hydrolytic enzymes, mainly from the hyphal tips. Moulds include all species of microscopic fungi that grow in the form of multicellular filaments, called hyphae. A connected