

***Aspergillus niger* in onions: A potential health threat**

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Abstract

Onions are a flavoring agent in Sri Lankan cuisine. Development of moulds in onions appears as black powdery masses and, *Aspergilli* were found to be the main agent in previous studies. *Aspergilli* cause infections in the immune-compromised hosts and in healthy individuals. Inhalation of *Aspergilli* results in allergic aspergillosis, bronchopulmonary aspergillosis and aspergilloma. Ingestion can lead to gut invasive aspergillosis leading to systemic infections. Normal intact mucosal barrier can't be penetrated by aspergillus spores, but in conditions such as gastric ulcers and severe gastritis it is possible to penetrate the mucosal barrier leading to invasive gut aspergillosis. Further *Aspergilli* also produce potent mycotoxins which lead to life threatening conditions. This study was done to determine the type of fungi causing black mould rot in onions and to find out methods which eliminate them during food preparation. Twenty five onions with black powdery spots were purchased from Anuradhapura during June 2016. Microscopy was carried out on this black mass and were plated on Saboroud's Dextrose Agar (SDA). Identification of fungi was carried out using standard procedures. Of the 25 onions positive for fungal growth, 14 onions were randomly selected grouped in to 7 groups and were tested for the effect of washing in tap water, washing in tap water and then immersing in salt solution, immersing in salt solution without washing in tap water, washing in tap water and then immersing in undiluted lime juice, immersing in undiluted lime juice without washing in tap water, boiling in water for 5 minutes and 10 minutes in reducing fungal contamination. The causative agent of black mouldy growth in all the 25 onions tested in this study was found to be *Aspergillus niger*. This fungus was found to be completely eliminated only by boiling in water. This study highlights the presence of a fungus in infected onions capable of producing opportunistic infections and mycotoxicosis in people who consume them. Therefore measures should be taken by responsible authorities to control the growth and transmission of fungi during storage and handling of onions. In addition this study also highlights the importance of consuming cooked onions over raw onions in view of preventing ingestion of viable fungi.

Keywords: *Aspergillus niger*, Black moulds, Immunocompromised, Mycotoxins

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