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Biodiversity of Aspergillus species on Various Food Stuff

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Abstract

Present Communication deals with the Biodiversity of *Aspergillus* species on various food stuff from different places like garden, waste food materials in hospital, food materials in houses. Spores of *Aspergillus* are ubiquitous in naturethat contaminate various food substrates. Basically, *Aspergillus* is most important filamentous fungi commonly occurring in soil, on decaying vegetation and seed grains. Most of the genus *Aspergillus* is saprophytes in natures. Some species are considered as important opportunistic pathogen in human and cause serious disease like Aspergillosis, Aspergilloma, Allergicasthma, Allergic bronchopulmonary aspergillosis. Therefore, authors have collected the samples from different places, and investigated it preliminary at taxonomic and then cultural level. Total three species of aspergillus were dominating viz., *A. niger, A. flavus, A. fumigatous.*

Keywords: Biodiversity, Aspergillus species, food stuff.

Introduction

Aspergillus was first catalogued in 1729 by the Italian priest and biologist Pier Antonio Micheli. After microscopic study Micheli was reminded of the shape of an Aspergillum (holy water sprinkler), from Latin spargere (to sprinkle), and named the genus accordingly *Aspergillus*. *Aspergillus*is one of the three fungal genera most important in the spoilage of foodstuffs andin the production of mycotoxins. *Aspergillus* species are the best adapted to grow in the tropics, as common species rarely grow below 10°C and most grow strongly at 37°C or above (Pitt and Hocking 2009).,*Aspergillus* species are responsible for several disorders in various plant and plant products. The most common species are *A. niger* and *A. flavus*. Due to the spoilage by *Aspergillus* species effects can be of sensorial, nutritional and qualitative nature like: pigmentation, discoloration, rotting, development of off-odors and off-flavours. The most notable consequence of their presence is mycotoxins which can contaminate the foods (Hedavai*etal*. 2007).Most of the species of *Aspergillus* are opportunistic pathogens that's why they can cause serious disease like Aspergillosis, Aspergilloma, Allergic asthma, Allergic bronchopulmonary aspergillosis(Sabino *etal*. 2019).

Materials and Methods:

During the survey investigators were collected the samples from different picnic spots, Gardens and hospitals of Yavatmal district. Most of the people threw the waste material of the foods during picnic and the remaining food stuff in the patients' tiffin and wet materials collected from the dustbins. Collected samples were cultured on Potato Dextrose Agar (PDA) medium. The temporary slides were prepared by using lactophenol. Morpho taxonomic investigation has been carried out by using various taxonomic key and literatures to identify the fungus (Charles Thom and Kenneth Rapper 1945).

Fig 1. Samples Collected from Different Areas

Observations and Results

Study of *Aspergillusniger*, normally shows cottony appearance, initially white to yellow and then turns into black. Coloniesof*Aspergillus flavus* are commonly powdery masses of yellowish-green spores on the upper surface and reddish-gold on the lower surface. *A. fumigatous* green echinulate conidia produced in chains basipetally from greenish phialides. *Aspergillus flavus* is an imperfect filamentous fungus,it is an opportunistic pathogen causing invasive and non-invasive aspergillosis in humans, animals, and insects. It also causes allergic reactions in humans. The spores of *Aspergillus* are presenteverywherein air, soil and organic matter. Humans normally inhale the spores. Generally, the disease is usually seen in immunocompromised patients. The immune system plays a role not only in recognizing inhaled mold and controlling growth but also in regulating the body's allergic and inflammatory response to the infection.

Allergic bronchopulmonary aspergillosis, normally found in patients with underlying asthma. This can be associated with allergic fungal rhinosinusitiss. According to detail study of the present investigation all these food stuff either destroy as early as possible from the hospital premises and properly sanitize the picnic spots, and to control the air borne and allergic diseases.

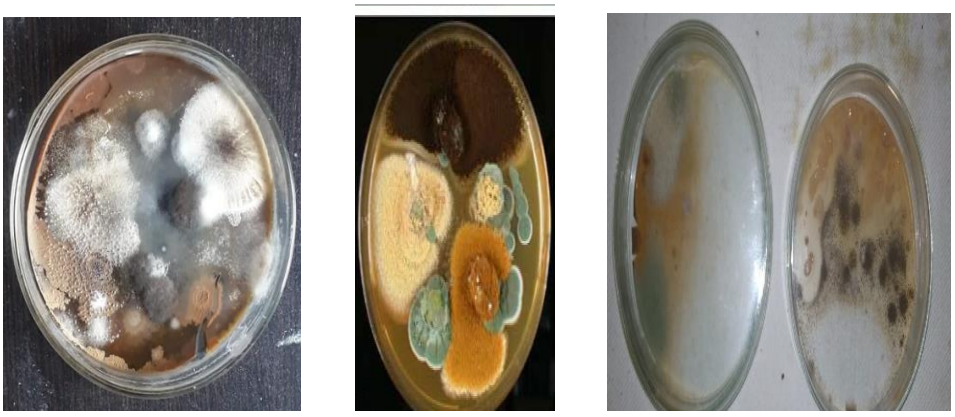

Fig.2.Cultural Study (Cultured on PDA)

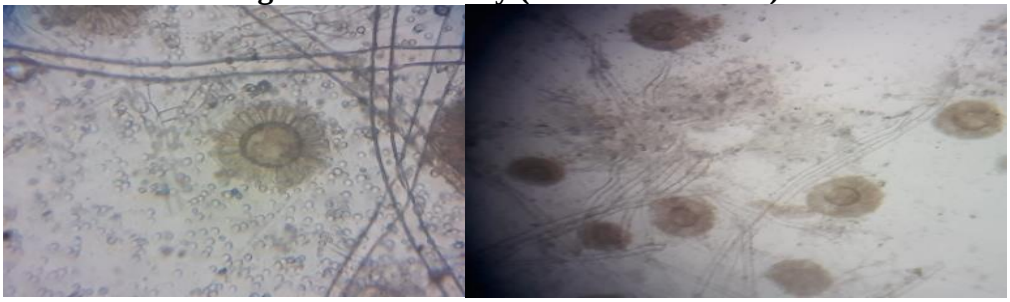

Fig.3(a). *Aspergillus niger* Fig.3(b). *Aspergillus flavus*

Fig.3.Morphotaxonomic Study of *Aspergillus*

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