

Isolation and Identification of *Aspergillus* Spp. from patients with pneumonia in Babylon

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Abstract

The present finding showed that *Aspergillus* SPP which cause aspergillosis from respiratory infection in human most common. Eighty (80) the collected samples of human sputum from patients within two months (December and January 2021-2022). The isolated fungi in human showed 62 out of 80 (77.5%) positive fungal isolate. which *Aspergillus flavus* 8 isolates (12.9%); *Aspergillus fumigatus* (7)isolates (11.29%); *Aspergillus niger* (6) isolates (%9.67) and *Aspergillus ochraceus* (5) isolates (8.06 %). Also another species. of fungi were taken off which entails *Penicillium* SPP. 7 isolates 11.29%, *Alternaria* Spp. 5 isolates (8.06 %), *Cladosporium* SPP.4 isolates (6.45%), *Trichophyton mentagrophytes* 3 isolate (4.84%) *Geotrichum* SPP. and *Rhizopus* Spp.2 isolates (3.23%) for each one of them, *Trichophyton verrucosum* one isolate (1.61%) whereas yeasts Spp. include 12 isolates (19.35%) Hence 26 isolates (41-93%) of *Aspergillus* Spp. from 62 positive fungal isolates, were recorded.

Keywords: *Aspergillus* Spp, Human, Pneumonia.

INTRODUCTION

Aspergillus fumigatus and *Aspergillus flavus* were considered as the most identified pathogens that are capable of living under wide range of environmental stress *Aspergillus* usually people inhale spores of *Aspergillus* without risk due to an enough immune response.

Aspergillosis under the effect of chronic allergic and invasive form considered for nearly 600000 deaths every year [1][2][3][9] is in layman terms occurs in people who develop Lung diseases like organ transplant fibrosis, cystic stem cell culosis or tuber, asthma, or those who cannot resist infection because of treatment they take such as stroids and some cancer treatment[1][4]. The immune system In healthy people, prevents these fungal to cause infection, because alveolar macrophages readily recognize these inspired conidia, swallow and destroyed [6] while, in immune-compromised individuals, *Aspergillus* species able to cause allergic diseases such as (asthma, allergic, sinusitis, alveolitis, an allergic bronchopulmonary aspergillosis and non-invasive aspergilloma) next exposure to conidia which spread in air [7].

Therefore this study aimed to detect the most common *Aspergillus* SPP. cause diseases to human.

MATERIALS AND METHODS

Sample Collection

Eighty (80%) human sputum samples were collected during period of two months which were (December and January 2021-2022) from patients in AL- Marjan hospital and specialist medical in Hilla-Babylon. which suffering from respiratory distress- Brain heart infusion broth used as transport media for all specimens and then in lab the samples inoculated on Sabouraud dextrose agar (SDA) with chloramphenicol incubated.

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in 25°C for two weeks for fungal isolation The appeared colonies were identified according to their color, shape, consistency and color of reverse plate and [8].

Wet mount smears prepare to identify the fungi by take loop full from the Fungal colonies and mixed with 1-2 drop from Lactophenol cotton blue Stain on the microscopic slide, that examine under power lense 10x and 40x to detect the structure which include hyphal and conidial elements that appeared to recognize the strains and after recognizing the fungus reinoculate in new plate for purification [9].

RESULTS

Isolation of fungal from human sputum.

The isolation of fungal from (80) sputum sample showed sixty two (62%) fungal isolates according to colour, texture, shape and the appearance of fungal Structure under the microscope (Table 1)

Table 1. show fungal species (mold and yeast) isolated from sputum of human

<i>molds</i>			<i>yeast</i>		
Species	positive isolate	(%)	species	positive isolate	(%)
Aspergillus flavus	8	12.90	Yeast SPP	12	19.35
Aspergillus fumigatus	7	11.29			
Penicillium SPP.	7	11.29			
Aspergillus niger	6	9.67			
Alternaria spp.	5	8.06			
Aspergillus ochraceus	5	8.06			
Cladosporium spp.	4	6.45			
Trichophyton mentagrophytes	3	4.84			
Geotricdum SPP.	2	3.23			
Rhizopus SPP.	1	3.23			
Trichophyton verrucosum	1	1.61			
Total	62 (80)				

DISCUSSION

From sixty two (62) fungal isolates, there were twelve (12) Fungal spp. appeared from sputum of human result from chronic disease in respiratory system. Two forms of Aspergillosis occur, they are acute and chronic which are clinically very distinct Acute Aspergillosis found in people with severely compromised immune system, e.g. these undergoing bone marrow transplantation. Chronic colonization or infection can cause complication in people with underlying respiratory, illnesses, such as asthma [7][10] Cystic fibrosis[8][11] sarcoidosis[9] tuberculosis, or chronic obstructive pulmonary disease [10][12].

Because of the most fungi are opportunistic pathogen in nature also may be found in healthy people besides the host immunity become Lower, disorder result from chronic

respiratory infection in this case these fungi will cause disease, these evidence was confirming the idea showed by [13] who showed that the increase pulmonary mycosis of the past decades, because the increase use drug of broad spectrum, chemotherapy and immunosuppressive agents as well as increased respiratory disease incidence Like lung cancer ,tuberculosis and chronic obstructive pulmonary disease, also the result of current study was in agreement with Egyptian study[14] who showed prevalence of fungal infection in respiratory tract was 66.6% while compared to [15] study in Tehran, Iran observed a prevalence of 36.6% for respiratory tract fungal isolates. Also [16] recorded 31.3 for pulmonary fungal isolates in Bhagaalpur, India.

Aspergillus SPP. Isolated as highly percentage of frequency (41.92%) with 12.90 for Aspergillus flavus (11.29%) for Aspergillus fumigatus, (9.67%) for Aspergillus niger and

(8.06%) for *Aspergillus ochreus*, whereas *Penicillium* SPP indicated (11.24%). *Alternaria* SPP. showed (8.06%), *Cladosporium* SPP. recorded (6.45%), *Trichophyton mentaglyphes* indicated (4.84%), *Geotrichum* SPP. and *Rhizopus* SPP. showed 3.23% for each one, and *Trichophyton verrucosum* recorded (1.61%) The result of the present study is approval with [17] who mention that 28.08% of total 381 isolates of genus *Aspergillus*-where *Aspergillus fumigatus* have highest percentage level of (29.9%), while *Aspergillus niger* (28.9%), *Aspergillus flavus* (18.790%), *Aspergillus terreus* (12.14%) and *Aspergillus nidulans* (2.890%).

Lots of studies showed that *Aspergillus fumigatus* is more worldwide in the Western countries where *Aspergillus flavus* is more wide spread in Asia and Middle East as the main cause of the pulmonary invasive aspergillosis [18] [19] Also [20] showed that the more common fungal which was *A. fumigatus* (57.5%) The present study confirmed that *Aspergillus* species regard the major fungi respiratory tract mycosis and these finding are in accordance with [21] who recorded that *Aspergillus* species may be considered as in charge of overriding morbidity and mortality relying on the immune status for host.

CONCLUSION

Aspergillus SPP. attacks people with Lung diseases. The majority identified pathogens are *Aspergillus flavus* and *Aspergillus fumigatus*.

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