قسم : الصحة ·
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تواجد بعض الفطريات المرضية في تراب حظائر الابقار واستخدام بعض المطهرات في التأثير عليها

محمد عبدالعال ، محمد عطيه، مختار الطرابيلي*

تم في هذه الدراسة جمع وفحص ٥٥ عينه من تراب حظائر الأبقار في محافظة أسيوط ، وقد أمكن عزل وتصنيف ١٢ عترة فطرية ، وقد أمكن استخدام بعض المطهرات لتأثيرها على الفطريات المعزولة ، وقد وجد أن الفورمالين ٥٪ والصوديوم هيدروكسيد ٣٠٪ بمحلول ساخن وكذلك انتيجيرم ٣٫٥٠٪ ممكن تطبيقهم بنجاح ضد الفطريات المرضية بعد فترة تعرض ٣ ساعات·

ويمكن القول من مناقشة النتائج أن أرضية حظائر الحيوانات تلعب دورا هاما في نقل الأمراض الفطرية للحيوانات · لذا يجب المحافظةعلى نظافتها واستخدام المطهرات بصورة دورية·

× : قسم البكتريولوجي ـ كلية الطب ـ جامعة أسيوط·

Dept. of Hygine.
Fac. of Vet. Med., Assiut University,
Head of Dept. Prof. Dr. A.Y. Lotfy.

OCCURRENCE OF TREMORGENIC FUNGI IN THE SOIL OF CATTLE YARDS AND THE EFFECT OF SOME DISINFECTANTS ON THE ISOLATED FUNGI

(With Two Tables)

By
M.A. SOBIH; M. ATTIA and M. ELTARABELY*

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SUMMARY

A total of 55 soil samples collected from cattle byres in Assiut Governorate were examined for tremorgenic fungi. Asergillus species (Asp. flavus 9.8, Asp. fumigatus 7.87, Asp. niger 7.87, Asp. nodulans 3.63) Penicillium spp 5.46, Microsporum gypseum 3.63, Trichophyton terrestre 3.63 and Saprophytic fungi 49.9 (mucor mucorals 7.87, Geotrichum condidum 1.8, Cladosparum warenckii 1.8. Dematociae spp 1.8 and yeast 25.45%) were isoaltated from the soil sample.

The effect of some available disnfectants on the isolated fungi was investigated.

Formalin 5%, Sod. Hydroxide 30% hot solution, antigerm 50 3% can be applied with success as fungicides at room temperature for 3 hours exposure, while chlorinated Lime 20% "25% active chlorine" and aluminum sulphate 2% were found to be uneffective.

INTRODUCTION

The occurrence and persistence of certain pathogenic micro-organisms in the soil has been lagely overlooked as a problem in the disease control. Many human and animal diseases are endemic in soil, the causative gent of which may contaminate soil through polluting agents especially diseased animals excretions.

Soil play an important role in the epidemidogy of animal diseases. The transmition of these diseases occur through contamination of foods, water and animal's skin with polluted soil porticles or even inhalation of dust from contaminted soil.

Although many pathogenes are short lived in soil, others persist for a long period depending on temperature, pH and moisture content (SAFAROV, 1965; ABD EL-KRIM, 1968 and TANNOK and SMITH, 1971).

Fungi were isolated from the soil by many worker. AHMED (1975) isolated 108 strains of dermatophytes belonging to Microsporum and Trichophyton species, while MOWAFI et al. (1980) isolated two pathogenic fungi, Keratinamyces ajelloi and M.gypseum, from the soil

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* : Dept. of Bacteriology, Faculty of Medicine, Assiut University.

of animal dwellings in Sharkia Governorate. SHREEVE, et al. (1979) tested the isolted fungi from the soil for tremorgenic toxin (mainly Aspergillus and penicillum spp.). SAXENA & BARUAH (1982) isoalted trichophyton terrestre from the soil while MIESSER and QADRIPUR (1983) isolated M.gypseum. T.ajelloi, M.fulvum, M.ćaokei, T.terrestre, T.vanbreuseghemii from the soil.

The effect of some disinfectants on the growth fungi was studied by many workers (EL-BAHAY et al. 1968, DENNIS and GALLNT, 1974 and MAHAJAN, 1983).

This Survey was carried out to study the distribution of potentially treamorgenic fungi in the soil of cattle yards in Assiut Governorate. Also, the effect of some disinfectants to control of animal diseases was investigated.

MATERIAL and METHODS

A total of 55 soil samples were collected from different cattle byres in Assiut Governorte. A sterile spatula was used to scrape a quantity of dust from the superficial layer to a sterile covered container. Dust from different places of byres was collected and mixed to get a represntative sample. Each sample weighed about 150 gms. Collected samples were transfered as quick as possible to the laboratory for examination.

I- Isolation of fungi :

The hair baiting technique was adopted according to VANBREUSEGHAM (1952). The soil samples were put in sterile petri dishes and moistened with dist. water, and on the surface of each sample sterile horse hair were scatered and incubated for about one month at room temperture (25±2 °C), when the substrates eventually became covered with growth of fungus. The latter was subcultured on sabouraud's dextrose agar media containing 0.5 gm chlormphenicol /liter. The inoculated plates were incubated at room temperture for two weeks, the colonies were examined culturally and microscopically using Aman's Lactophenol cotton blue technique according to EMMON's (1963) and the microculture methods after AHMED (1975).

II- The effect of some disinfectants:

The effect of avaible disinfectants on the isoalted species of fungi was tried. A suitable dilution was prepared from each of the following disinfectants :

- Formalin 5%.
- Sod Hydroxide 30% hot solution.
- Antigerm 50 "pFizer" 3%.
- Chlorinated lime 2% "25% active chlorine".
- Alum. sulphate 2%.

The fungicidal effect of each disinfectant was determined when left to act on the inoculated soil fungi at room temperature. Cultures of the isolated strains were prepared.

Experiment :

Two standard paltinum loopful from each isoalted species of fungi were suspended in 2 ml sterile normal saline solution from which 1 ml were inoculated into steile petridishes containing sterile soil. 9 ml from each dilution of th disinfectants were added to the inoculum in the petridish and thoroughly mixed. Inoculated plates were kept at room tenperature (25±2 °C) for various duration ranging from 15 m to 6 hours. Controls were also prepared using

the same inoculum of the isolated species of fungi suspended into sterile soil. The dust samples (0.5 - 1 gm) were spread evenly over the surface of the bottom of petri dish to give layer of dust 1 or 2 mm deep. Microorgansism were isolated from both treated and control sampl as described by DENNIS and GEE (1973).

RESULTS and DISCUSSION

The result given in table (1) show that Asp. flavus, Asp. funigaus, Asp. niger. Asp. noiulans were isolated at an incidence percentage of 9.8, 7.87, 7.87 and 3.63 respectively, while penicillium species were isolated from 5.16 of the samples. recently the production of staggrs syndrome in calves and lambs following oral dosing with homogenised mycelium of penicillium cyclopium isolated from the soil has been reported (DIMENNA et al., 1976). The disease may result when cattle and sheep normally ingest a quantity of soil during grazing (HEALY, 1968) and would therefore swallow any toxin present, and the production of tremorgenic metabolites from other by penicillia and various species of Aspergillus has been noted (CIEGLER, et al., 1976). Asp. flavus are capable of elaborating a group of Carcinogenic aflatoxin compunds (ARMBRECHET et al. 1963). Asp. flavus and Asp. Fumigtus are capable of producing endotoxins and were reported to be responsible for a respiratory infections in poultry (TILDEN et al., 1961). Various penicillia have also been repoted to cause mycotoxicosis in poultry (PORGACS et al., 1971). Microsporum gypseum was isolated from 3.63% of soil samples, while trichephyton terrestre was detected in 3.63% of the samples (Table 1). These organisms attack the skin causing ring worm in animals.

Although saprophytic fungi were isolated from the soil with an incidence percentage of 49.9 (Mucor mucorls 7.87, Geotrichum candidum 1.8, clodosporum warenckii 1.8, Demataciae species 1.8 and yeast 25.45%). These organisms seems to has no role in the epidemiology of animal diseases. However, RIPPON (1974) reported the isolation of five fungi from several cases of animal mycosis particularly cattle and equines.

The data presented in Table (2) show that Formalin of 5% concentration at room temperature kills Asp. flavus, Asp. fumigatus, Asp. niger. Myco. gypseum within 15 minutes, Asp. nodulans and T. terrestre was killed within 30 m, while, penicillium spp. within 3 hours. 2% aluminum sulphate and 2% chlorinated lime have faile to produce their fungicidal action on the tested orgnisms. Sod. Hydroxide 30% hot solution was found to be effect on Asp. fumigatus, M. gypseum and penicillium spp. within 15 m. and on Asp. niger within 30 m. Asp. flavus, T. terrestre within 1 hour while on Asp. nodulans within 3 hours.

Antigern 50 (pFizer) was found to be effective on Asp. flavus, Asp. fumigatus, Asp. nodulans when used in conc 3% for 30 m. and on Asp. niger within 1 hour, but has no effect on the other tested fungi.

It could be concluded that formaline 5% and 30% solution of sod Hydroxide ca effeciently destroy all tested fungi within 3 hours, while antigerm 50 3% kill Aspergillus Species within 1 hours.

So attention should be paid to diseased animals and contaminated materials that may pollute soil. Floors should be kept clean and as dry as possible, frequent disinfection with effective disinfectants as recommended to control animal diseses.

Table (1)

Frequency distribution of the isolated fungi

Isolated fungi	Frequency %
Aspergillus flavus	9.8
Asp. fumigatus	7.87
Asp. niger	7.87
Asp. nodulans	3.03
Penicillium species	5.46
Microsporum gypseum	3.63
Trichophyton terrestre	3.63
Mucor mucorals	7.87
Geotrichum Candidum	1.8
Cladosporum warenckii	1.8
Dematiaciae species	1.8
Yest (Rhoda torula glutinis)	25.42

Table (2)

The effect of some disinfectionts on the isolated fungi

Time exposure	After 125 m.					After 30 m.					After 1 hour					After 3 hours					After 6 hours				
Test organism	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e	a	b	c	d	e
Asp. nodulans	+	+	+	+	+	+	+	+	+	+	-	+	+	-	+	-	+	+	-	+	-	+	-	-	+
Asp. flavus	-	+	+	+	+	-	+	+	+	+	-	+	+	-	+	-	+	-	-	+	-	+	-	-	+
Asp. fumigatus	-	+	-	+	+	-	+	-	+	+	-	+	-	-	+	-	+	-	-	+	-	+	-	-	+
Asp. niger	-	+	+	+	+	-	+	-	+	+	-	+	-	+	+	-	+	-	-	+	-	+	-	-	+
My. gypseum	-	+	-	+	+	-	+	-	+	+	-	+	-	+	+	-	+	-	+	+	-	+	-	+	+
Penici. spp.	+	+	-	+	+	+	+	-	+	+	+	+	-	+	+	-	+	-	+	+	-	+	-	+	+
Trich. terrestre	+	+	+	+	+	+	+	+	+	+	-	+	+	+	+	-	+	-	+	+	-	+	-	+	+

a = Formalin 5% **b** = 2% alum.sulphate **c** = 30% hot. sol. of sod. hydroxide

d = Antigerm 50 3% **e** = chlorinated line (25% active chloine.).

\+ = growth - = no growth.

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