توجد بعض الفطريات المرضية في ثراب حظائر الأبقار واستخدام بعض المطهرات في التأثير عليها

محمد عبدالله، محمد عطية، مختار الطرابيلي

تم في هذه الدراسة جمع وفحص 55 عينة من ثراب حظائر الأبقار في محافظة أسوان، وقد أمكن عزل وتصنيف 12 عةة فطرية، وقد أمكن استخدام بعض المطهرات لتأثيرها على الفطريات المزعجة، وقد وجد أن الفورمالين 5% والصوديوم هيدروكسيد 20% بحلول مائي وكذلك أنتيجيرم 0.5% ممكن تطبيقهم بنجاح ضد الفطريات المرضية بعد فترة تهض 3 ساعات.

ويمكن القول من مناقشة النتائج أن أرضية حظائر الحيوانات تلعب دوراً هاماً في نقل الأمراض الفطرية للحيوانات. لذا يجب المحافظة على نظامتها واستخدام المطهرات بصورة دورية.
OCCURRENCE OF TREMORGENIC FUNGI IN THE SOIL OF CATTLE YARDS AND THE EFFECT OF SOME DISINFECTANTS ON THE ISOLATED FUNGI
(With Two Tables)

By
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SUMMARY

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

The effect of some available disinfectants 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 largely overlooked as a problem in the disease control. Many human and animal diseases are endemic in soil, the causative agent of which may contaminate soil through polluting agents especially diseased animals excretions.

Soil play an important role in the epidemiogy of animal diseases. The transmission of these diseases occur through contamination of foods, water and animal's skin with polluted soil particles 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 streins 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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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 tremorgenic 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 Governnorte. 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 representative sample. Each sample weighed about 150 gms. Collected samples were transferred 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 scattered and incubated for about one month at room temperature (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 chloromphenicol/liter. The inoculated plates were incubated at room temperature 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 available disinfectants on the isolated species of fungi was tried. A suitable dilution was prepared from each of the following disinfectants:
- Formalin 5%
- Sodium 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 platinum loopful from each isolated species of fungi were suspended in 2 ml sterile normal saline solution from which 1 ml were inoculated into sterile 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 temperature (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. Microorganisms were isolated from both treated and control sampi as described by DENNIS and GEE (1973).

RESULTS and DISCUSSION

The result given in table (1) show that Asp. flavus, Asp. fumigatus, Asp. niger. Asp. noilulans were isolated at an incidence percentage of 9.8, 7.87, 7.87 and 3.63 respectively, while penicillum species were isolated from 5.16 of the samples. recently the production of staggs syndrome in calves and lambs following oral dosing with homogenised mycelium of penicillum 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 compounds (ARMBRECHET et al. 1963). Asp. flavus and Asp. Fumigatus 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 reported to cause mycotoxicosis in poultry (POR-GACS et al., 1971). Microsporum gypseum was isolated from 3.63% of soil samples, while trichophyton 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, cladosporum warencikii 1.8, Demataceae 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, penicillum spp. within 3 hours. 2% aluminum sulphate and 2% chlorinated lime have fail to produce their fungicidal action on the tested organims. Sod. Hydroxide 30% hot solution was found to be effect on Asp. fumigatus, M. gypseum and penicillum 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 efficiently destroy all tested fungi within 3 hours, while antigen 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 diseas.
Table (1)

Frequency distribution of the isolated fungi

<table>
<thead>
<tr>
<th>Isolated fungi</th>
<th>Frequency %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspergillus flavus</td>
<td>9.8</td>
</tr>
<tr>
<td>Asp. fumigatus</td>
<td>7.87</td>
</tr>
<tr>
<td>Asp. niger</td>
<td>7.87</td>
</tr>
<tr>
<td>Asp. nodulans</td>
<td>3.03</td>
</tr>
<tr>
<td>Penicillium species</td>
<td>5.46</td>
</tr>
<tr>
<td>Microsporum gypseum</td>
<td>3.63</td>
</tr>
<tr>
<td>Trichophyton terrestrae</td>
<td>3.63</td>
</tr>
<tr>
<td>Mucor mucorals</td>
<td>7.87</td>
</tr>
<tr>
<td>Geotrichum Candidum</td>
<td>1.8</td>
</tr>
<tr>
<td>Cladosporum wareneckii</td>
<td>1.8</td>
</tr>
<tr>
<td>Demataciace species</td>
<td>1.8</td>
</tr>
<tr>
<td>Yeast (Rhoda torula glutinis)</td>
<td>25.42</td>
</tr>
</tbody>
</table>
The effect of some disinfectants on the isolated fungi.

Table (2)
REFERENCES


