IOSR Journal of Agriculture and Veterinary Science (IOSR-JAVS)
e-ISSN: 2319-2380, p-ISSN: 2319-2372. Volume 7, Issue 9 Ver. III (Sep. 2014), PP 19-28
www.iosrjournals.org

Search Project Report; Field Study on Farm Workers Occupational Health Hazards Associated with Camels Zoonotic Dermatophytosis, with Reference to Fungal Etiology, and Morbidity Rates, Taif, KSA

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Abstract: *This investigation paper was discharged from the search project (No. 1-435-3065), with the same title, which was under the coast of Taif University, KSA. The work steps were done at Taif area, KSA, it was studied on 15farms, 1187camels and 45(farm workers) farmers. The farmers were 42.2, 31.1 and 26.7% with nationality Somalis, Sudanese and others. Camels were infected by superficial skin mycosis 19.2, also farmers were 24.4% infected by zoonotic superficial skin mycosis. The 11farmers infected had given 37specimens from their lesions area, which resulted 29.7, 18.9, 18.9, 16.2 and 16.2% from upper limbs, lower limbs, body, heads and faces of them. Results of Dermatophytes isolation and identification were 34.4, 26.6, 17.2 , 12.5 and 9.4% from upper limbs included spp. (T. unguium and T. manuum), lower limbs (T. unguium, T. pedis, Tri. verrucosum and Tri. rubrum), body (T. corporis, T. cruris, Tri. verrucosum and Tri. rubrum), faces (T. barbae and T. faciei) and heads (T. capitis). Results were 92.2 and 7.8% of T. and Tri. The results of Tinea spp. were 28.1, 17.2, 10.9, 10.9, 9.4, 7.8, 4.7 and 3.1% for T. unguium, T. manuum, T. pedis, T. corporis, T. capitis, T. barbae, and T. cruris, while Trichophyton spp. were 4.7 and 3.1% for Tri. verrucosum and Tri. rubrum respectively.*

Keywords: *Farm workers, Farmers, Superficial skin mycosis, Zoonotic, Dermatophytes.*

Symbols: *No.: Number, Spp.: Species, T.: Tinea, Tri.: Trichophyton.*

I. Introduction

Dermatophytosis are mycoses (fungal infections) of skin caused by Dermatophytes filamentous fungi which have the ability to invade the epidermis and keratinized structures derived from it such as hair or nails. They comprise three genera: *Trichophyton* (*Tri.*), *Epidermophyton* and *Microsporum*, related to microorganisms (MOs) in the soil which are capable of digesting keratinous material[1]. Fungal infections caused by Dermatophytes are limited to the superficial layers of epidermis and keratin-consisting skin appendages such as nails and hair[2]. Based on the source of the infection, Dermatophytes can be divided into three groups: anthropophilic, zoophilic and geophilic. *Tri. rubrum* belongs to the anthropophilic group meaning that it spreads mostly among humans and very rarely affects animals[3]. A survey of *Ringworm* (*RW*) in camels showed over 25% of young animals suffered from *Tri. verrucosum* infection 11%[4]. Camels less than 3yrs. age and is characterized by circumscribed crusty hairless lesion, 1-2cm in diameter distributed over the head, neck, shoulder, limbs and flanks[5]. Skin scrapings 136from camels suspected had given 77/136 *Tri. verrucosum*. Both female and male camels were susceptible and camels less than 3yrs. old were more susceptible to infection[6]. Higher prevalence of *RW* due to *Tri. spp.* infection in Bactrian than in Dromedary camel and a higher prevalence in the she camel 77% than males 23%, which included *Tri. verrucosum,* and *Tri. rubrum*. which caused sporadic cases of skin infections in individually maintained camels as well as affecting many camels in the herds. These fungi create distinctive lesions of *RW* observed with *Tri. spp.* were comparatively dry, hard, crusty, granulomatous and larger in size[7]. *RW* is zoonotic disease and highly contagious, as well of animals are scanty and rarely reported. Zoophilic Dermatophytosis are sporadic infections of man caused by Dermatophytes typically invading animals. many improvements are needed in the field of occupational medicine in farming[8]. Persistent Dermatomycosis (*RW*) caused by *Tri. verrucosum* affected 20dairy calves spread to 2animal attendants working among the calves. Two animal attendants developed skin lesions that were circumscribed and itchy[9]. Fungal infections of the skin are especially typical of agricultural workers. Each day, farmers spend several hrs. in rubber boots which provide an ideal microclimate for the development of fungal feet infections[10]. In 1997 skin diseases formed 10.8% of all newly acknowledged occupational diseases in farmers in Poland, while the respective figures for 1995 and 1996 were 11.2% and 13.4%. According to German

statistics, in 1994 a total of 559 farmers with skin problems had been subjected to medical evaluation because of possible occupational dermatitis. In the same year, 37occupational skin diseases in farmers were acknowledged and compensated which comprised 12.9% of all occupational diseases in farmers[11]. There is no compulsory medical assessment before one starts work as a farmer. Many patients meet an occupational health professional for the first time when the disease is already advanced and legal action towards obtaining an occupational rent has already been issued. In these circumstances, confirming or rejecting the possible occupational etiology of a given dermatomes is very difficult[12]. The frequency of zoophilic fungal infections among farmers compared to non-farmers in eastern Poland, was carried out on adult patients with a suspicion of fungal infection of skin or its appendages. Dermatophytes infection was found in farmers 55.2%. whereas zoophilic dermatophytes in farmers 4.3%. *Tri. verrucosum* was found in 3cases. Zoophilic fungi were responsible either for superficial mycosis[13]. Animals can infect humans with Dermatophytes, occupational relationship is established when the same fungus is isolated from both the animal and worker, 995cases of zoophilic dermatophytosis were registered as occupational dermatomes in the farmer German Democratic Republic over a 4yrs. period[14]. Between 1992-1994, 32 isolates of *Tri. verrucosum* from cases of *T. corporis*, *T. faciei* and *T. capitis*. Patients included dairy and cattle farmers, a slaughter man who worked in an abattoir, a veterinary tutor and children who lived on farms. Many patients lived in one of the three dairy farming areas of Victoria[15]. Zoonotic diseases are an ever-present concern in small animal veterinary practice and are often overlooked. These may cause human disease ranging from mild and self-limiting to fatal. The risk of development of a zoonotic disease can be lessened by early recognition of infected animals, proper animal handling, basic biosecurity precautions, and most importantly, personal hygiene[16]. Occupations at risk are farmers, slaughter men, Vets., laboratory and pet shop workers. Human infection occurs rarely by direct contact with infected soil[17]. It had been observed that the greatest economic and human health problems in the developed countries come from Dermatophytosis of domestic cattle. Approximately 60% of children were affected by *T. capitis* in some regions, and more than 50% of the population in some parts of Europe was reported to have *T. pedis*. *RW* in humans is usually characterized by pruritus and inflammation that is most severe at the edges, with erythema, scaling and occasionally blister formation. Central clearing is sometimes seen, particularly in *T. corporis* resulting in the formation of a classic *RW* lesion[18]. Dermatophytes are able to penetrate the keratinized layer of skin, hair and nails. The commonest features are scaling and erythema of the skin. In hairy areas, alopecia can develop. Sometimes more inflammatory changes with boggy swelling occur, especially on the scalp and beard areas. *T. pedis* is a common infection in the general population. A large European population-based survey found evidence of fungal foot disease in 35% of patients[19]. *Tri. verrucosum* infects cattle, farm buildings and straw. *Tri. mentagrophytes* can be transmitted by cattle and domestic animals[20]. Dermatophytes spp. are the most common causative agents of *Tinea* in rural areas of Iran[21]. Zoonotic Dermatomycosis infection as *T. pedis* and *manuum* was found in 19.4% farmers. *T. pedis* and *manuum* was found in 14.3% forestry workers. One *T. corporis* was determined in the farmer group were found in the forestry group. The most frequently isolated agent in the two groups was *Tri. rubrum*. The frequencies of superficial mycosis were found to be higher in the farmer group than in the forestry group, although similar etiological agents were isolated in both groups. The farmers had greater rates of contact with zoonotic pathogenic fungi present in soil as well as from infected farm animals than the foresters[22]. Dermatophytes most common isolated from toenails and skin lesion where it is identified in about 60% of patients[23]. In favorable conditions untreated infection can spread to other glabrous skin regions like skin on calves or hands[24]. Cutaneous mycosis describes a wide spectrum of fungal infections caused by Dermatophytes spp. Zoophilic as *Tri. verrucosum*, is associated with wild and domestic animals[25]. Eight calves, raised in a farm in Erzurum province during winter season, were referred to the clinic with complaints of skin lesions of *RW*. Additionally, the owner had *T. corporis* of the arm with an erythematous, scurfy, crusty and pruritic lesion. The isolated agents were identified as *Tri. verrucosum*. The identical strain isolated was verified in both samples of calves and the owner[26]. Zoophilic Dermatophytosis is a major public and veterinary health problem globally widespread among cattle, during 2006–2007, Only 5.2% cases of Dermatophytosis were identified in cattle and *Tri. verrucosum* was the exclusive fungus isolated from animals. Moreover, 20.8% cases of human Dermatophytosis were identified and *Tri. verrucosum* was the prevalent causative agent in the body, scalp, foot, nail and groin of the patients. *Tri. verrucosum* was the predominant cause of Dermatophytosis in livestock and dairy farmers. Occurrence of Dermatophytosis in humans and cattle and confirms that the Dermatozoonosis are responsible for predominant forms of the disease in people who were in contact with cattle[27]. Once the disease is introduced into a herd, it spreads rapidly among susceptible animals. Close confinement, age, breed of animal and production system coupled with prolonged wetting are believed to be important predisposing factors. In spite of the significance of *RW* in global economy, the disease has not been adequately studied in Nigeria. Although some attempts have been made at documenting human Dermatophytosis[28]. Superficial mycosis is more prevalent in tropical and subtropical countries including India, *Tri.* spp., is proved most common causative agents. Such fungi attack various parts of the body and lead to Dermatophytosis as *T. pedis* (athlete's foot) effects on the feet; *T. unguium* on the fingernails and toenails; *T. corporis* on the arms, legs and trunk, *T. cruris*

(jock itch) groin area ; *T. manuum* hands and palm area, *T. capitis* on the scalp, *T. barbae* affects facial hair, *T. faciei* on the face[29].

The aim of this research project: The present study was aimed for obsevation occupational health hazards of farmers. It will provide firstly a description brief of camel farms at Taif area, morbidity rates of infected camels by superfacial skin mycosis in addation the zoonotic superfacial skin mycosis diseases affected farmers. Descripe sources of zoonotic dermatophyte, assessing the frequency of infections with zoophilic spp. among farmers compared to non-farmers. Explain the morbidity rates of zoonotic dermatophytosis and identification of fungal pathogenes. This are very imporatan of health care for farmers to recognize and prevent zoonotic diseases.

II. Materials and methods

Understudy field area: Taif area was the selected area for search project, it was started by the preparation of agreement paper from farm owners. Visits were done of the camel farms and explained the aim of search project for permit the examination on camels and farmers, this visits were ended by taken agreement papers of farm owners, steps of clinical examination and specimens collection. Camel farms are about (No.=200±30) at Taif area according to collected information from owners and farmers. Camels in each farm were (No.=50±20). Farm owners always occupy 1farmer/30 camels. Nationality about farmers were mostly Sudanese, Somalis and others (Pakistanis, Bengalis).

Understudy groups preparation: It was carried on for the preparation of understudy and control groups from camels and farmers for serial clinical examination and record every data. The clinical examination results and complains of camels and farmers were recorded.

Collection of data: The data were included the farms, camels and farmers were collected from farm history. Total of understudy were 15camel farms, 1187camels and 45farmers. The control of camels were 15camels in each stage, also 15non-farmers in each stage.

Clinical examination and specimens collection: Clinically examined the camels and the farmers. Total specimens from both were collected and differentiated according the lesions area. The specimens were sent under aseptic condition to Micro. Lab. for carry up (macroscopical and microscopical) examination and microbial culturing for isolation and identification of fungal etiological agents.

Diagnosis pattern: Macroscopical and Microscopical examination: Gross examination may occasionally reveal evidence of fungi as well. Gram stain, different concentrations of KOH, is the most commonly used methods for the direct examination of specimens. Fungal spores may be viewed directly on hair shafts, this technique identifies a fungal infection in about 40%–70% of the infections but cannot identify the species of Dermatophytes. Isolation and Identification of Dermatophytes: Specimens were cultured on Myco-biotic Agar (Merck, Germany) and Sabroud dextrose agar (SDA), (Merck, Germany) slant tubes, then incubated at 25-30°C for 4weeks. Isolates Dermatophytes and saprophytic fungi were identified based on morphology and microscopic features[30-32]. **Data analysis:** The data were recorded from the previous steps and entered into Microsoft Excel Sheet, then summarized and analyzed[33].

III. Results and discussion

Table and diagram 1: Description of the camel farms were examined for search project

Camel farms were examined		
Stages Farms *No.	**Camels *No.**	**Farmers *No. (1 Farmer / 30 camels)**
Stage I		
1	30	1
2	45	2
3	63	2
4	71	3
5	80	3
6	98	4
7	102	4
Total *No. = 7	489	19
Stage II		
8	122	5
9	73	3
10	52	2
11	66	2
12	85	3
13	96	4
14	89	3
15	115	4
Total *No. = 8	698	26
Total Search Project		

Farms *No.=15	1187	45

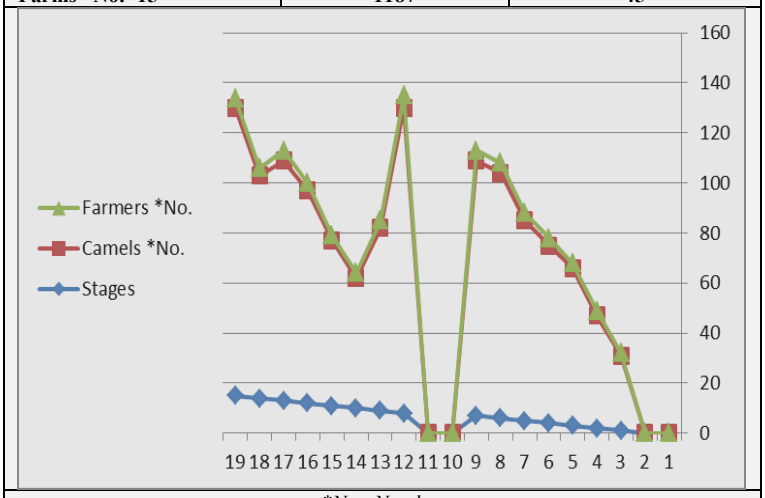

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Table and diagram 1show description of the camel farms were examined for search project, the work were divided into 2 stages. Stage I contained 7 farms, 489 camels and 19 farmers, while stage II contained 8 farms, 698 camels and 26 farmers. Finally total farms were 15, camels 1187 and farmers 45 respectively.

Table and diagram 2: Incidence of the number and nationality for farmers

Stages	Nationality			Total
	Sudanese	Somalis	Others	
Stage I				
***No.**	6	8	5	19
%	6/19 31.6%	8/19 42.1%	5/19 26.3%	19/19 100%
Stage II				
***No.**	8	11	7	26
%	8/26 30.8%	11/26 42.3%	7/26 26.9%	26/26 100%
Total Search*No.	**14**	**19**	**12**	**45**
%	**14/45 31.1%**	**19/45 42.2%**	**12/45 26.7%**	**45/45 100%**

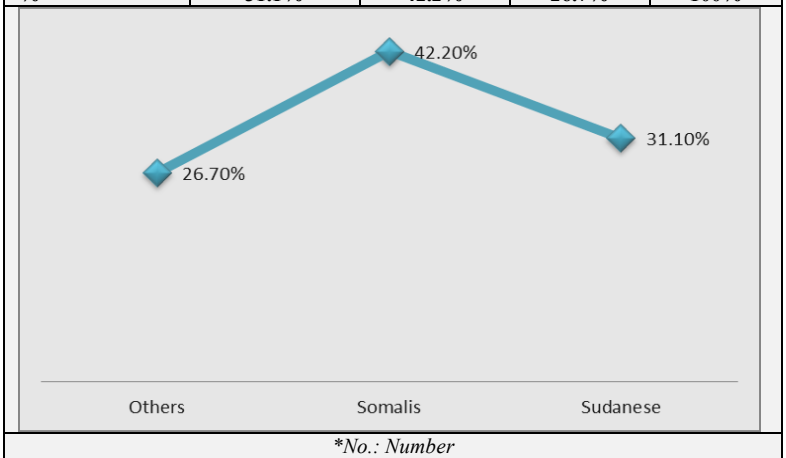

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Table and diagram 2 show incidence of the number and nationality for farmers, in stage I were 19 farmers 42.1, 31.6 and 26.3%, stage II were 26 farmers were 42.3, 30.8 and 26.6%, finally total were 45 farmers as 42.2, 31.1 and 26.7% with nationality Somalis, Sudanese and others respectively.

Table and diagram 3: Incidence of examined camels for superficial skin mycosis

Stages	Camels control *No.	Total camels examined *No.	Infected camels *No.	Infected *No. / Total *No. (%)
Stage I	15	489	85	85/489 (17.4%)
Stage II	15	698	143	143/698 (20.5%)
Total	**30**	**1187**	**(85+143) 228**	**228/1187 (19.2%)**

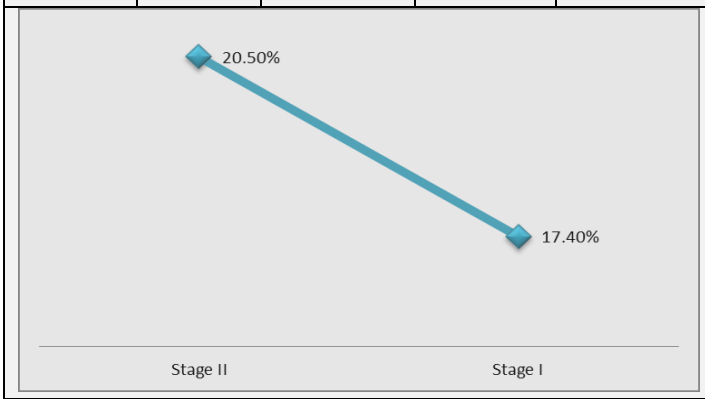

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Table and diagram 3 show incidence of examined camels for superficial skin mycosis, stage I and II results were 17.4 and 20.5% while total result was 19.2% camels infected by superficial skin mycosis. Control camels were non infected. A survey of *Ringworm* (*RW*) in camels showed over 25% of young animals suffered from *Tri. verrucosum* infection. within 11%[4], 136 examined, 56.6% *Tri. verrucosum*, were isolated. Both female and male camels were susceptible and camels less than 3yrs. old were more susceptible to infection[6]. Higher prevalence of *RW* due to *Tri. spp.* infection in Bactrian than in Dromedary camel and a higher prevalence in the she camel 77% than males 23%, which included *Tri. verrucosum,* and *Tri. rubrum*. which caused sporadic cases of skin infections in individually maintained camels as well as affecting many camels in the herds[7]. Persistent Dermatomycosis (*RW*) caused by *Tri. verrucosum* affected 20dairy calves. Two animal attendants developed skin lesions[9].

Table and diagram 4: Incidence of examined farmers for zoonotic superficial skin mycosis

Stage	Non-Farmers control *No.	Total farmers examined *No.	Infected Farmers *No.	Infected *No. / Total *No. (%)
Stage I	15	19	4	4/19 (21.0%)
Stage II	15	26	7	7/26 (26.9%)
Total	**30**	**45**	**11**	**11/45 (24.4%)**

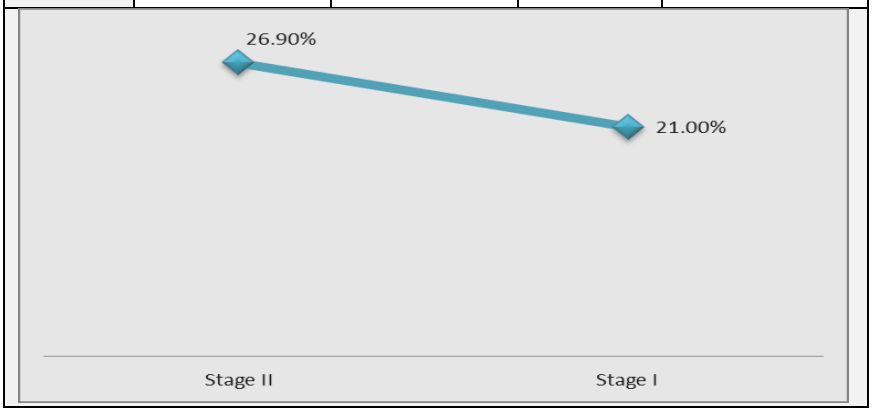

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Table and diagram 4 show incidence of examined farmers for zoonotic superficial skin mycosis, stage I and II results were in 21.0 and 26.9%, as well total result was 24.4% infected farmers by zoonotic superficial skin mycosis. Non-farmers control were non infected. Fungal infections of the skin are especially typical of farmers who spend several hours in rubber boots which provide an ideal microclimate for the development of fungal feet infections[10]. In 1997 skin diseases formed 10.8% of all newly acknowledged occupational diseases in farmers in Poland, while the respective figures for 1995 and 1996 were 11.2% and 13.4%, in 1994 a total of 559farmers with skin problems had been subjected to medical evaluation because of possible occupational dermatitis. In the same year, 37occupational skin diseases in farmers were acknowledged and compensated which comprised 12.9% of all occupational diseases in farmers[11]. There is no compulsory medical assessment before one starts work as a farmer. Many patients meet an occupational health professional for the first time when the disease is already advanced and legal action towards obtaining an occupational rent has already been issued. In these circumstances, confirming or rejecting the possible occupational etiology of a given dermatomes is very difficult[12]. The frequency of zoophilic fungal infections among farmers compared to non-farmers in eastern Poland, was carried out on adult patients with a suspicion of fungal infection of skin or its appendages. Dermatophytes infection was found in farmers 55.2%. whereas zoophilic dermatophytes in farmers 4.3%. Zoophilic fungi were responsible either for superficial mycosis[13]. Animals can infect humans with Dermatophytes. An occupational relationship is established when the same fungus is isolated from both the animal and worker, 995cases of zoophilic Dermatophytosis were registered as occupational dermatomes in the farmer German Democratic Republic over a 4yrs. period[14]. Between 1992-1994, 32isolates of *Tri. verrucosum* from cases of *T. corporis*, *T. faciei* and *T. capitis*. Patients included dairy and farmers, a slaughter man who worked in an abattoir, a veterinary tutor and children who lived on farms[15]. Zoonotic diseases are an ever-present concern in small animal veterinary practice and are often overlooked. These may cause human disease ranging from mild and self-limiting to fatal. The risk of development of a zoonotic disease can be lessened by early recognition of infected animals, proper animal handling, basic biosecurity precautions, and, most importantly, personal hygiene[16]. Occupations at risk are farmers, slaughter men, Vets., laboratory and pet shop workers. Human infection occurs rarely by direct contact with infected soil[17]. It had been observed that the greatest economic and human health problems in the developed countries come from Dermatophytosis of domestic cattle. Approximately 60% of children and more than 50% of the population in some parts of Europe. A large European population-based survey found evidence of fungal foot disease in 35% of patients[19]. Dermatophytes infects cattle, farm buildings and straw can be transmitted by cattle and domestic animals[20]. Zoonotic Dermatomycosis infection was found in 19.4-14.3% in farmers. The frequencies of superficial mycosis were found to be higher in the farmer than forestry group, although similar etiological agents were isolated in both groups. The farmers had greater rates of contact with zoonotic pathogenic fungi present in soil as well as from infected farm animals than the foresters[22]. It is the most common of all Dermatophytes that can be isolated from toenails and skin lesion where it is identified in about 60% of patients[23]. In favorable conditions untreated infection can spread to other glabrous skin regions like skin on calves or hands[24]. Cutaneous mycosis describes a wide spectrum of fungal infections caused by Dermatophytes *spp*. Zoophilic species of Dermatophytes, is associated with wild and domestic animals[25]. Eight calves, raised in a farm in Erzurum province during winter season, were referred to the clinic with complaints of skin lesions of *RW*. Additionally, the owner had Dermatophytes infection of the arm, identical strain isolated was verified in both samples of calves and the owner[26]. Zoophilic Dermatophytosis is a major public and veterinary health problem globally widespread among cattle, during 2006–2007, Only 5.2% cases of Dermatophytosis were identified in cattle the exclusive fungus isolated from animals. Moreover, 20.8% cases of human Dermatophytosis were identified was the prevalent causative agent for Dermatophytosis in the body, scalp, foot, nail and groin of the patients. It was the predominant cause of Dermatophytosis in livestock and dairy farmers. Occurrence of Dermatophytosis in humans and cattle and confirms that the Dermatozoonosis are responsible for predominant forms of the disease in people who were in contact with cattle[27]. Once the disease is introduced into a herd, it spreads rapidly among susceptible animals. Close confinement, age, breed of animal and production system coupled with prolonged wetting are believed to be important predisposing factors. In spite of the significance in global economy, the disease has not been adequately studied in Nigeria. Although some attempts have been made at documenting human Dermatophytosis[28]. Superficial mycosis is more prevalent in tropical and subtropical countries including India [29].

Table and diagram 5: Incidence of zoonotic superficial skin mycosis lesions area for farmers

Infected farmers *No.=11	Mycosis lesions area						
	Heads	Faces	Upper limbs	Lower limbs	Body	Total specimen	Mycotic infection %
Farmer1	+	+	+		+	4/5	80%
Farmer2			+	+	+	3/5	60%
Farmer3	+	+	+			3/5	60%
Farmer4			+	+		2/5	40%
Farmer5	+	+	+			3/5	60%
Farmer6			+	+	+	3/5	60%
Farmer7	+	+	+	+	+	5/5	100%
Farmer8			+	+	+	3/5	60%
Farmer9	+	+	+	+	+	5/5	100%
Farmer10	+	+	+			3/5	60%
Farmer11			+	+	+	3/5	60%
Total mycosis lesions area	**6/37 16.2%**	**6/37 16.2%**	**11/37 29.7%**	**7/37 18.9%**	**7/37 18.9%**	**37/37 100%**	

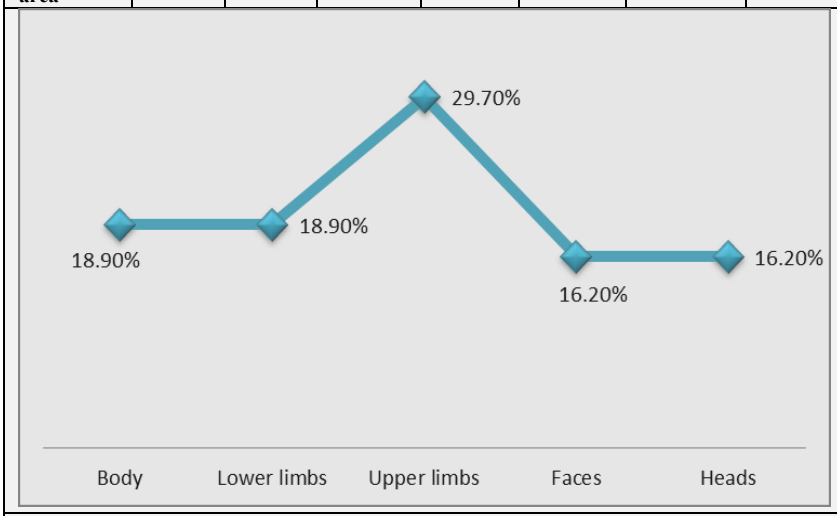

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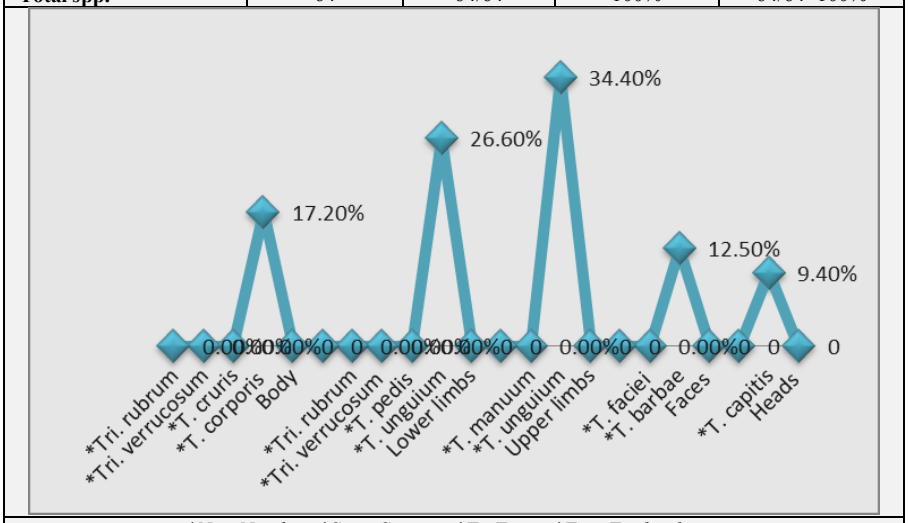
Table and diagram 5 show incidence of zoonotic superficial skin mycosis lesions area for farmers, the 11 farmers had given 37specimens from their lesions area. Specimens resulted in 29.7, 18.9, 18.9, 16.2 and 16.2% from upper limbs, lower limbs, body, heads and faces of infected farmers respectively. The more infected farmers were 7th and 9th farmers.

Table and figure 6: Incidence of Dermatophytes spp. from positive specimens of zoonotic superficial skin mycosis lesions for farmers

Dermatophytes *Spp. Total *No.=37	*Spp. isolated *No.	*Spp. *No. / Total *No.	*Spp. isolated %	Total
Heads *No.=6				
T. capitis	6	6/64	9.4%	
				6/64=9.4%
Faces *No.=6				
T. barbae	5	5/64	7.8%	
T. faciei	3	3/64	4.7%	
				8/64=12.5%
Upper limbs *No.=11				
T. unguium	11	11/64	17.2%	
T. manuum	11	11/64	17.2%	
				22/64=34.4%
Lower limbs *No.=7				
T. unguium	7	7/64	10.9%	
T. pedis	7	7/64	10.9%	
Tri. verrucosum	2	2/64	3.1%	
Tri. rubrum	1	1/64	1.6%	
				17/64=26.6%
Body *N0.=7				
T. corporis	7	7/64	10.9%	
T. cruris	2	2/64	3.1%	

Tri. verrucosum	1	1/64	1.6%	
Tri. rubrum	1	1/64	1.6%	
				11/64=17.2%
Total spp.	64	64/64	100%	64/64=100%

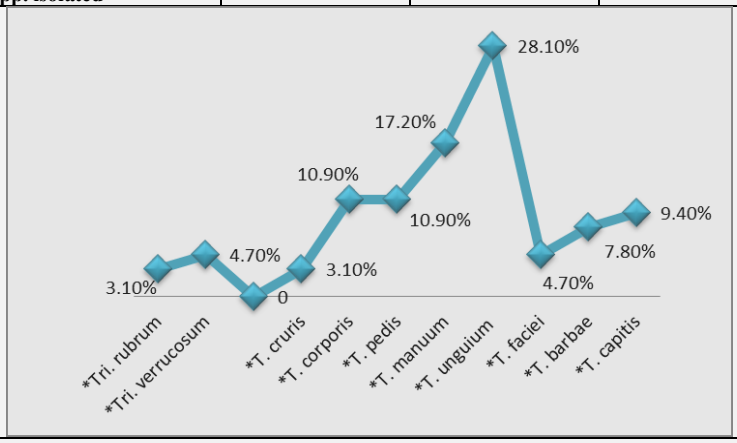


**No.: Number, *Spp.: Species, *T.: Tinea, *Tri.: Trichophyton*

Table and figure 6 show incidence of Dermatophytes spp. from positive specimens of zoonotic superficial skin mycosis lesions for farmers, the results were in 34.4, 26.6, 17.2 , 12.5 and 9.4% from upper limbs were included (T. unguium and T. manuum), lower limbs (T. unguium, T. pedis, Tri. verrucosum and Tri. rubrum), body (T. corporis, T. cruris, Tri. verrucosum and Tri. rubrum), faces (T. barbae and T. faciei) and heads (T. capitis) respectively.

Table and figure 7: Incidence of the total Dermatophytes spp. from positive specimens of zoonotic superficial skin mycosis lesions for farmers

Dermatophytes *Spp. Total *No.=64	***Spp. isolated *No.**	***Spp. *No. / Total *No.**	***Spp. isolated %**
***Spp.**			
T. capitis	6	6/64	9.4%
T. barbae	5	5/64	7.8%
T. faciei	3	3/64	4.7%
T. unguium	18	18/64	28.1%
T. manuum	11	11/64	17.2%
T. pedis	7	7/64	10.9%
T. corporis	7	7/64	10.9%
T. cruris	2	2/64	3.1%
Total *T. *Spp.	59	59/64	92.2%
Tri. verrucosum	3	3/64	4.7%
Tri. rubrum	2	2/64	3.1%
Total *Tri. *Spp.	5	5/64	7.8%
Total Dermatophytes *Spp. isolated	64	64/64	100%



**No.: Number, *Spp.: Species, *T.: Tinea, *Tri.: Trichophyton*

Table and figure 7 show incidence of the total Dermatophytes spp. from positive specimens of zoonotic superficial skin mycosis lesions for farmers, the results were 92.2 and 7.8% of *T.* and *Tri.* The results of *Tinea* were 28.1, 17.2, 10.9, 10.9, 9.4, 7.8, 4.7 and 3.1% for *T. unguium, T. manuum, T. pedis, T. corporis, T. capitis, T. barbae,* and *T. cruris*. While *Trichophyton* were 4.7 and 3.1% for *Tri. verrucosum* and *Tri. rubrum* respectively. The frequency of zoophilic fungal infections among farmers compared to non-farmers in eastern Poland, was carried out on adult patients with a suspicion of fungal infection of skin or its appendages. Dermatophytes infection *Tri. verrucosum* was found in 3cases[13]. Between 1992-1994, 32 isolates of *Tri. verrucosum* from cases of *T. corporis*, *T. faciei* and *T. capitis*. Patients included dairy and cattle farmers, a slaughter man who worked in an abattoir, a veterinary tutor and children who lived on farms. Many patients lived in one of the three dairy farming areas of Victoria. A few lived in the outer suburbs of Melbourne. One cattle farmer came from south-east New South Wales[15]. Approximately 60% of children were affected by *T. capitis* in some regions, and more than 50% of the population in some parts of Europe was reported to have *T. pedis*. RW in humans is sometimes seen, particularly in *T. corporis* resulting in the formation of a classic RW lesion[18]. *T. pedis* is a common infection in the general population[19]. *Tri. verrucosum* infects cattle, farm buildings and straw. *Tri. mentagrophytes* can be transmitted by cattle and domestic animals[20]. Dermatophytes spp. are the most common causative agents of *Tinea* in rural areas of Iran[21]. Zoonotic Dermatomycosis infection as *T. pedis* and *manuum* was found in 19.4% farmers. *T. pedis* and *manuum* was found in 14.3% forestry workers. One *T. corporis* was determined in the farmer group were found in the forestry group. The most frequently isolated agent in the two groups was *Tri. rubrum*[22]. Cutaneous mycosis describes a wide spectrum of fungal infections caused by dermatophytes *spp*. Zoophilic species of Dermatophytes, as *Tri. verrucosum*, is associated with wild and domestic animals[25]. Eight calves, raised in a farm in Erzurum province during winter season, were referred to the clinic with complaints of skin lesions of RW. Additionally, the owner had *T. corporis* of the arm with an erythematous, scurfy, crusty and pruritic lesion. The isolated agents were identified as *Tri. verrucosum*. The identical strain isolated was verified in both samples of calves and the owner[26]. Zoophilic Dermatophytosis is a major public and veterinary health problem globally widespread among cattle, during 2006–2007, Only 5.2% cases of Dermatophytosis were identified in cattle and *Tri. verrucosum* was the exclusive fungus isolated from animals. Moreover, 20.8% cases of human dermatophytosis were identified and *Tri. verrucosum* was the prevalent causative agent for Dermatophytosis in the body, scalp, foot, nail and groin of the patients. *Tri. verrucosum* was the predominant cause of dermatophytosis in livestock and dairy farmers. Occurrence of Dermatophytosis in humans and cattle and confirms that the dermatozoonosis are responsible for predominant forms of the disease in people who were in contact with cattle[27]. Once the disease is introduced into a herd, it spreads rapidly among susceptible animals. Close confinement, age, breed of animal and production system coupled with prolonged wetting are believed to be important predisposing factors. In spite of the significance of RW in global economy, the disease has not been adequately studied in Nigeria. Although some attempts have been made at documenting human Dermatophytosis[28]. Superficial mycosis is more prevalent in tropical and subtropical countries including India, *Tri.* spp., is proved most common causative agents. Such fungi attack various parts of the body and lead to Dermatophytosis as *T. pedis* (athlete's foot) effects on the feet; *T. unguium* on the fingernails and toenails; *T. corporis* on the arms, legs and trunk, *T. cruris* (jock itch) groin area ; *T. manuum* hands and palm area, *T. capitis* on the scalp, *T. barbae* affects facial hair, *T. faciei* on the face[29].

IV. Conclusion

It's important to note that there is high level of zoophilic Dermatophytosis are sporadic infections of farmers caused by Dermatophytes spp., typically invading animals. There is no compulsory medical assessment before one starts work as a farmer. Many patients meet an occupational health professional for the first time when the disease is already advanced and legal action towards obtaining an occupational rent has already been issued. In these circumstances, confirming or rejecting the possible occupational etiology of a given dermatitis is very difficult. The frequency of zoophilic fungal infections among farmers higher compared to non-farmers. There is an occupational relationship is established when the same fungus is isolated from both the animal and worker. Many improvements are needed in the field of occupational medicine in farming

V. Acknowledgment

Thankful was directed to camel farm owners, farmers and laboratory technicians for their helps in producing this result paper of search project.

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