

FUNGAL INFECTIONS IN CATTLE IN A GAUSHALA AT JAIPUR

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ABSTRACT

A study was undertaken from January to August, to determine the prevalence of dermatophytes in cattle at a rehabilitating centre "Gaushala" near Jaipur. In all, 38 skin scrapings from infected animals (30 from adult cows and eight from calves) were subjected to laboratory investigations. Ten of 30 (33.33%) and three of eight (37.5%) samples from adults and calves, respectively were positive for dermatophytes. Cultural studies revealed that a majority of positive cattle were infected with geophilic dermatophyte (predominant infection of *Microsporum gypseum*) followed by zoophilic dermatophyte (*Trichophyton mentagrophytes*). Contaminating fungi viz. *Aspergillus* spp., *Penicillium* spp. and *Mucor* spp. were also isolated during the study.

Key words: *Microsporum gypseum*, *Trichophyton mentagrophytes*, cattle

Pathogenic fungal infections in cattle are though self limiting, yet cause highly contagious diseases. These have been a matter of concern, as the pathogens are globally distributed, cause long lasting disease and are of public health significance (Bernardo *et al.*, 2005). Dermatophytes are surface parasites of keratinized tissue and hair of livestock and are communicable to man (Sharma *et al.*, 2010). These are acquired from the surroundings by the contact with infected skin. This study was conducted to determine the occurrence of fungal infections in cattle in a Gaushala located in Jaipur city.

MATERIALS AND METHODS

The study was undertaken during January to August in 38 stray cattle (30 adult cows and eight calves) at a rehabilitating center "Gaushala", near Jaipur city. The age of animals varied from three months to five years and all belonged to indigenous breeds.

The skin lesions were carefully examined using Wood's lamp and skin scrapings were collected as per standard protocol (Quinn *et al.*, 1994). Wet mount of each skin sample was prepared and examined for the presence of macroconidia and mycotic hyphae using standard techniques (Rippon, 1988). Simultaneously the scrapings were examined by fluorescent microscopy using Calcofluor white technique (Robinson and Padhye, 1988).

Microscopic findings were confirmed by inoculating the material over Sabouraud Dextrose Agar (SDA) plates (Hi-media) containing antibacterial compounds (Penicillin and Streptomycin). Inoculated culture plates were incubated at 25°C and were examined daily for 21 days. Dermatophytes as well as saprophytic fungi were identified using standard keys (Mackenzie *et al.*, 1986; Quinn *et al.*, 1994)

RESULTS AND DISCUSSION

The clinically affected adult cows developed lesions on skin in the chest area and on limbs while non pruritic periocular lesion were seen in calves. Lesions were characteristically discrete with scaling patches of hair loss and gray-white crust formation.

Microscopic examination of 38 scrapings revealed 13 (34.21%) samples to be positive for mycotic infections. Age-wise prevalence revealed that three of the eight calves (37.5%) and ten of the 30 adult cattle (33.3%) suffered from the fungal infection. All 13 positive samples on cultural examination yielded both pathogenic dermatophytes as well as contaminant saprophytes. *Microsporum gypseum* infection was recorded in all ten adult cattle where as *Trichophyton mentagrophytes* infection was recorded in all three calves. The geophilic saprophytes contaminating the samples that were identified on surface coat of the cattle belonged to *Aspergillus* spp., *Penicillium* spp. and *Mucor* spp.

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Occurrence of cattle dermatophytosis during pre-monsoon and monsoon season coincides with the most favored geo-climate determinants for faster multiplication and growth of etiological agents viz. *M. gypseum* and *T. mentagrophytes*. It was interesting to note that all diseased adult cattle revealed *M. gypseum* where as diseased calves revealed *T. mentagrophytes*. Higher prevalence of *M. gypseum* in cattle followed by a few *T. mentagrophytes* infection is in confirmation with previous reports from India (Ranganathan *et al.*, 1997; Mitra *et al.*, 1998). However, our findings are contradictory from an earlier report of Kumar and Khurana (2005) who reported more prevalence of *Trichophyton* spp. in cattle than *M. gypseum* in Haryana. It can be attributed to geographical distribution of the pathogens. Our findings are also contradictory to Radostits *et al.* (1994) and Aiello and Mays (1998) who reported that calves are more susceptible to the dermatophytosis while cattle usually suffer from *Trichophyton* spp. infection. In order to derive at a precise conclusion on higher occurrence of *Microsporum* spp. than *Trichophyton* spp. and age-wise susceptibility to dermatophytosis of Indian cattle detailed epizootiological investigations involving larger sample size in a randomly selected study area is needed. Our findings in respect of contaminating fungi viz. *Penicillium* spp., *Aspergillus* spp. and *Mucor* spp. are in consonance with earlier reports published elsewhere (Mitra *et al.*, 1998 and Bernardo *et al.*, 2005). The isolation of *M. gypseum* in cattle is of great significance as it has zoonotic importance. In stray cattle, many predisposing factors might have contributed to the establishment of these fungal infections.

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