J. Phytol. Res. 17(1): 89-91, 2004

FUNGI ASSOCIATED WITH MAMMALS AND BIRDS OF SANJAY GANDHI JAIVIC UDYAN, PATNA (BIHAR)

S. KUMAR*, AJAY KUMAR SINGH, PREM RAJ SINGH, S.P. SINGH*** and B. K. PRASAD**
Postgraduate Department of Botany, Magadh University, Bodh Gaya- 824234, India.
*Postgraduate Department of Botany, A. N. Collage, Patna, India.
**Deartment of Botany, B.D. Evening College, Patna, India.
***Postgraduate Department of Botany, V.K.S. University, Aara, Bhojpur (Bihar), India.

Among mammals maximum number of fungi was found to be associated with *Melorsus ursinus* followed by *Panthera leo persica, Selenarctos thibetanus, Panthera pardus* and *Presbytis pileatus geei.* No Fungus was observed with the hair of *Axis axis. Microsporum gypseum* was recorded to be the most frequent. Among birds, the number of fungi was maximum in association with *Psittacula krameri* followed by *Columba livia, Pavo cristatus, Phasianus coichicus. Aspergillus flavus* was of common occurrence with birds.

Keywords : Bird; Feather; Fungi; Hair, Mammals.

The fungi observed in association with animals are of keratinophilic nature and very important due to being pathogenic to man. The animals in the zoological gardens are collected from different parts of the world comprising varied ecological conditions, therefore, there is every possibility of occurrence of the fungi of different types[1-5]. Also the animals serve as huge reservoir of such fungi and source of dissemination with their host animals especially the birds accustomed to migration. The survival of these fungi is also of interest due to occurrence with many animals in varied ecological niche. The present paper deals with the isolation of fungi associated with the hair of mamals and feathers of birds of the Sanjay Gandhi Jaivic Udyan, Patna a Zoological garden (Bihar state). Dermophytic test of the fungus isolates was also performed.

The hairs of mammals and feathers of birds (Table 1) of the said Jaivic Udyan were cut with sterilized scissors and collected with the help of caretakers and brought to the laboratory in sterilized polythene pockets. Fungi were isolated by aseptically placing 250 hair sample of each mammal and 50 feathers of each bird (Table 1) in moist blotters autoclaved at 15 psi. for 15 min. These were incubated at 25-28°C keeping them in big sealed desiccators filled in the base with distilled water to maintain continued high RH for a period of 35 days. Fungi appeared on the noted substrates were transferred aseptically to Sobouraud Dextrose Agar medium having the composition of Neopeptone- 10g, Dextrose- 40g, Agar- 15g and Distilled water- 1000 ml. *Chaetomium* spp were grown on Leonian Agar having the composition of Peptone - 0.625g, Maltose- 6.25g, Malt extract- 6.25g, Magnesium sulphate- 0.625g, Agar- 20g and Distilled water- 1000 ml. Dermophytic, Test Medium[6] was used for testing the dermatophytic nature of the fungus isolates.

Among mammals maximum number of fungi was found to be associated with *Melorsus ursinus* followed by *Panthera leo persica, Selenarctor thibetanus, Panthera tigris* and *Presbytis pileatus geei.* Their least number was recorded from *Aritetope cervicapra* and none from *Axis axis* (Table 1). *Microsporum gypseum* was observed to be the most frequent among the isolates. The number of fungi in association with *Pstittacula krameri* was maximum followed by *Columba livia, Pavo crystatus, Phasianus colchicus* among the birds. *Aspergillus flavus* was of common occurrence with birds (Table 1).

Based on dermophytic test *Ctemomyces serratus, Aspergillus fumigatus, A. flavus, Histoplasma capsulatum, Microsporum audouinii, M. gypseum, M. nanum, Allescheria boydii, Trichophyton mentagrophytes, T. rubrum, T. gallinae, T. tonsurans, T. terrestre, Candida albicans, Epidermophyton floccosum, Hormodendron pedrosoi, Scopulariopsis bravicaulis,* and *Blastomyces dermatitidis* seem to be pathogenic.

It is certain that animals have been brought to the zoological gardens form differnet habitats of world comprising varying ecological conditons. The fungi harbouring on them and adapted to particular condition survived here in newly shifted place indicating their range of tolerance of the environment. Also through these animals the dermatophytic fungi get ample opportunity of wide dissemination to distant places, may incite serious skin disease and mycoses in man as the fungi associated with hair and feather have been reported to be pathogenic[7] causing many skin diseases[8]. This sort of study cautions to the pet keepers/workers in the zoo and persons involeved in rearing of such animals of possibility of contacting various mycoses. Also it is of interest equally to the

Table 1. Fungi isolated from the hairs of animals and feather of birds.

ANIMALS	
Bear (*Melorsus ursinus)*	1. *Microsporum audouinii Gruby* 2. *M. gypseum Bodin* 3. *M. nanum (Fuentes et al.) Fuentes* 4. *Hormodendron pedrosoi (Brumpt) Negroni* 5. *Aspergillus flavus Link ex Fries* 6. *A. fumigatus Fressenius* 7. *Chaetomium homopilatum Omvik* 8. *C. bostrichodes Zopt* 9. *Mucor sp.* 10. *Fusarium sp.* 11. *Trichophyton mentogrophytes (Robin) Blanchard* 12. *Blastomyces dermatitidis* Gilchrist & Stokes.
Lion *(Panthera leo persica)*	1. *Microsporum nanum (Fuentes* et al*) Fuentes* 2. *M. gypseum Bodin* 3. *Hormodendron pedrosi (Brumpt) Negroni* 4. *Aspergillus fumigatus Fressenius* 5. *Sepedonium sp.* 6. *Chaetomium homopilatum Omvik* 7. *C. bostrichodes Zopt*
Panther *(Panthera pardus)*	1. *Aspergillus flavus Link ex Fries* 2. *Mucor sp.* 3. *Rhizopus sp.* 4. *Scopulariopsis brevicaulis (Saccardo) Brainer.*
Himalayan bear *(Selenarctos thibetanus)*	1. *Trichophyton gallinac (Magnin) Silva & Benhan* 2. *Aspergillus flavus Link ex Fries* 3. *Blastomyces dermatitidis Gilchrist & Stokes* 4. *Scopulariopsis brevicaulis (Saccardo) Brainer* 5. *Epidermophyton floccosum (Harz) Linger & Milochevitch* 6. *Chaetomium homopilatum Omvik* 7. *Mucor sp*
Tiger (*Panthera tigris)*	1. *Microsporum gypseum Bodin* 2. *Trichophyton rubrum (Cast) Sabour* 3. *Aspergillus fumigatus Fressenius* 4. *Chaetomium globosum Kunz* 5. *Mucor sp*
Golden Langoor *(Presbytis pileatus geei)*	1. *Histoplasma capsulatum Darling*
Black Buck (*Antelope cervicapra)*	1. *Penicillium sp.*
Chital *(Axis axis)*	None

Contd...

Contd...

BIRDS	
Parrot *(Psittacula krameri)*	1. *Penicillium sp*
	2. *Trichophyton tonsurans Malmsten.*
	3. *Aspergillus flavus Link ex Fries*
	4. *A. fumigatus Fresenius*
	5. *Chaetomium homopilatum Omvik*
	6. *Fusarium sp.*
Pigeon (*Columba livia)*	1. *Aspergillus flavus Link ex Fries*
	2. *A. fumigatus Fressenius*
	3. *A. niger Van Tieghem*
	4. *Penicillium sp.*
	5. *Curvularia sp.*
Chatrin lori *(Chatrin lori)*	1. *Trichophyton tonsurans Malmsten*
	2. *Aspergillus flavus Link ex Fries.*
White peacock (*Pavo crystatus)*	1. *Aspergillus flavus Link ex Fries.*
	2. *A. clavatus Desmazieres*
	3. *Fusarium sp.*
Emu *(Dromains novaehollandiae)*	1. *Condida albicans (Robin) Berkhout*
Golden pheasant *(Chrysolophus pictus)*	1. *Aspergillus flavus Link ex Fries*
	2. *Ctenomyces serratus Eid*
	3. *Allescheria boydii Schear*
Ring neck pheasant *(Phasianus colchicus)*	1. *Microsporum nanum (Fuentes et al.) Fuentes*
	2. *M. gypseum Bodin*
	3. *Aspergillus niger Van Tieghem*
	4. *Penicillium sp.*

mycologists and dermatologists.

References

1. Ajello L, George L K and Zeidberg L D 1952, *Microsporum gypseum* and *Histoplasma capsulatum* spores in soil and water. *Science* **116** 208.
2. Ajello L 1956, Soil as natural reservoir for human pathogenic fungi. *Scince* **123** 876.
3. Ajello L 1959, A new *Microsporum* and its occurrence is soil and on animals. *Mycologia* **51** 69-76
4. Ajello L and Albert E M 1972, Survey of Eastern island soils for keratinophilic fungi. *Mycologia* **64** 161-166.
5. Pugh G J F, Blackman J and Jones G M 1963, Studies on fuingi costal soils IV, Collulose decomposing species in sand dunes. *Trans. Brit. Mycol. Soc.* **46** 565-571.
6. Talpin D, Zias N, Rebell G and blank H 1969, Isolation and recognition of dermatophytes on a new medium (DTM). *Archs Derm.* **99** 203.
7. Pugh G J F and Mathison G E 1966, Association between birds nest their pH and keratinophilic fungi. *Sabouraudia* **5** 49-53
8. Baneka ES and Rogers AL 1970, *Medical mycology manual.* Burgess Publishing Co. Minneapolis Minn 55415.