

## Short Communication

# A study on the existence of *Aspergillus* in birds in the farms around Urmia-Iran

Amin Hashempour<sup>1\*</sup>, Mohammad Hossein Sadeghi Zali<sup>2</sup>, Reza delshad<sup>3</sup>, Vahid Reza Karamad<sup>2</sup>, Vahid Farzayi<sup>2</sup> and Morteza Kalbkhani<sup>2</sup>

<sup>1</sup>Young Researchers Club, Urmia branch, Islamic Azad University, Urmia, Iran.

<sup>2</sup>Faculty of Veterinary Medicine, Islamic Azad University, Urmia branch, Iran.

<sup>3</sup>Microbiology Laboratory, Islamic Azad University, Urmia branch, Iran.

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Air, nutrition, soil and clinical materials pollution are the most important subjects that have been considered and studied around the world. Fungi of many kinds, especially saprophyte fungi, play important role in causing allergy. Saprophyte fungi are the reason for severe refuctions in those whom their job is seed selling, bird keeping, farmers and miller. Also, it is found on crops, skin and mucus of human. The purpose of this research was an inspection about the rate of all kind of *Aspergillus* in birds in farms around Urmia. It should be considered that the culture must have no cycloheximide because *Aspergillus* is sensitive and cannot grow. The cultures were prepared under quite sterile condition and were sent to farms and the sampling was performed by swab from oral cavity (deeply from lungs) and the samples were cultured on sabouraud dextrose agar culture. The fungi were examined by a microscope for exact personification. From the 600 inspected samples, 225 cases were infected by *Aspergillus niger*, 35 cases by *Aspergillus fumigatus* and 50 cases by *Aspergillus flavus*. Fungi cause damages to living organisms: 1. By attacking their tissues and different organs; and 2. by producing mycotoxins. It is suggested that while a mycotic disease is epidemic in the farm, we should separate diseased chickens from those that are safe and euthanizing weak and thin chickens, because they do not have proper growth and also they cause the progression of the disease in the farm. In this case we can stop the development of the disease by adding  $\text{CuSO}_4$  0.5/1000 to consuming water. Farmers should collect and sterilize eggs after the laying of eggs to guarantee the safety of the new born chickens.

**Key words:** *Aspergillus*, air, fungi, saprophyte, bird.

## INTRODUCTION

The fungal disease Aspergillosis has been reported in a variety of wild birds in many geographical locations. Certainly many species of birds, including passerines, is susceptible to *Aspergillus* (Joseph and Joseph, 1977). When avian Aspergillosis is mentioned, however, it is usually in the context of pulmonary Aspergillosis (Calnek, et al., 1997). Invasive Aspergillosis has classically been associated with pulmonary infection. Invasive pulmonary Aspergillosis is the most common manifestation of serious *Aspergillus* infection in all hosts. However, other pulmonary manifestations include Aspergilloma or allergic bronchopulmonary Aspergillosis (Paterson, 2004).

Aspergillosis is a non-contagious disease, caused by the representatives of the *Aspergillus* genus. It is described in humans, mammals, domestic and wild birds. Most commonly, *A. fumigatus*, *A. flavus*, *A. nidulans*, *A. niger*, are isolated but *A. fumigatus* is detected in 95% of the cases of Aspergillosis in wild birds of prey (Mihaylov et al., 2008).

In poultry, important effects on performance can be due to a mycotoxicosis caused by intake of mycotoxins produced by fungi. Mycoses, on the other hand, are diseases caused by the growth of the fungi in an animal. Systemic mycosis is usually caused by dimorph yeasts. Examples are coccidioidomycosis, histoplasmosis and blastomycosis. The condition is localized in the internal organs or skeleton of the animal. Subcutaneous and intermediate mycoses are localized in subcutis, digestive

\*Corresponding author. E-mail: [doctor\\_amin\\_dvm@yahoo.com](mailto:doctor_amin_dvm@yahoo.com).

**Table 1.** Different flocks with the sampling results table.

Row	Average weight (kg)	Sampling device	Farm	Average age (days)	Positive samples			Negative
					<i>A. niger</i>	<i>A. fumigatus</i>	<i>A. flavus</i>	
1	1/900	100	10000	38	36	5	3	56
2	2/150	100	10000	39	51	3	8	38
3	1/980	50	5000	39	18	2	7	23
4	1/800	50	5000	35	20	3	5	22
5	1/950	50	5000	39	14	3	7	26
6	2/300	50	5000	43	13	4	6	27
7	2/250	50	5000	41	17	4	5	24
8	1/900	50	5000	38	15	3	5	27
9	2/450	50	5000	45	28	5	2	22
10	1/975	50	5000	39	24	3	1	26

and respiratory tract, mouth and nasal cavity and sinuses (De Gussem, 2006). Aspergillosis in birds is reported nearly worldwide (Milton, 2000).

#### MATERIALS AND METHODS

In the present study, 600 broilers were sampled randomly from 10 poultry farms. Each broiler was weighed and tracheal samples were taken by swab dropping technique. Samples were cultured at 25°C. Further tests were applied for positive samples. It should be considered that the culture must have no cycloheximide because *Aspergillus* is sensitive to it and cannot grow. The cultures were prepared under quite sterile condition and were sent to farms and the sampling was performed by swab from oral cavity (deeply from lungs) and the samples were cultured on sabouraud dextrose agar culture. The fungi were then examined by a microscope for exact personification (Table 1).

#### RESULTS

From the 600 inspected samples, 225 cases were infected by *A. niger*, 35 cases by *A. fumigatus* and 49 cases by *A. flavus*. Overall prevalence of *Aspergillus* species in samples of birds tested 51.5%, respectively.

#### Conclusion

Since fungi make lesion in two ways; one in internal organs and the other toxins heat, humidity, condensation, poor ventilation conditions provide fungi proliferation beside afore-mentioned ones stress reduces the quality of egg shell and increases its vulnerability. Fungi spores can also enter capillary holes in eggs, therefore if those spores would not be sprayed with antifungal so when the

eggs are placed in hatchery will cause chicks contamination because it releases fungal spores. When the bed of farm is wet, it makes the bed susceptible for contamination increase and growth of fungi. Subsequently a disease increase or rather one of the other ways which develops diseases is ingestion of moldy foods. Suggestion which can be offered is in the time of outbreak sick chickens should be isolated from healthy ones and skinny and weak chickens should be eliminated because they do not have good growth and are contagious. During outbreak, disease spread can decrease by changing CuSo<sub>4</sub> solution instead of drinking water. Poultry breeder should disinfect eggs soon after being laid and gathered in order not to have problems for future new born chickens.

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