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PREVALENCE OF COCCIDIOSIS IN CROWS, PEACOCK AND PIGEONS: INSIGHT ON POULTRY FARMING

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ABSTRACT

Coccidiosis is an important disease of poultry affecting poultry farming on a larger scale in the World including Pakistan. To explore the role of other hosts including Crows, Peacock, and Pigeons in spreading Coccidiosis to chickens and other domestic hosts, the current study was planned to evaluate the prevalence of Coccidiosis in Crows, Peacock, and Pigeons in Multan. For this purpose, Faecal samples suspected of coccidiosis were collected from farms, zoos and different outbreak cases by visiting in field in different areas of District Multan. It was found crows and peacocks did not show the prevalence of Eimeria species. While in pigeons, a 52 % prevalence of Eimeria species was found. 62% prevalence was found in females while it is 38% in male pigeons. These results show that Coccidiosis is more prevalent in pigeons than in crows and peacocks. As pigeons are game birds and used to fly all over the areal space of a city, so continuous source of spread of coccidiosis. So, coccidiosis in gaming pigeons should be treated accordingly to prevent the spread of disease in other birds, especially commercial poultry to prevent heavy economic losses.

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INTRODUCTION

In Pakistan, the poultry sector is regarded as a critical element of the livestock sector serving as an opportunity for employment for more than 1.5 million people. Absorbing an investment of over 1056 billion, the poultry sector has recorded an worth appreciating growth of 7.3% annually in the last decade. Pertinent to this expansion of the poultry industry, Pakistan has become the 11th largest producer of poultry making a tremendous potential for future advancement (Government of Pakistan, 2023).

Poultry meat is one of the important sources of proteins, fats, and organic and inorganic essential components

required by human beings. The poultry industry annually raises almost 40 to 42 billion broiler birds, but coccidiosis disease causes major economic losses worldwide that reach up to 2.4 billion dollars (Abbas et al., 2019; Abbas et al., 2023). Coccidiosis is one of the major threats to the poultry industry worldwide and causes heavy economic losses that could reach up to 3 billion US dollars per annum throughout the world and more prominent losses occurred in developing countries (Brown et al., 2018). Eimeria species penetrate the intestinal cells of the host which results in to damage the intestinal walls which ultimately leads to decreased feed intake, loss of weight, weakness, dehydration, and

bloody diarrhea (Abbas et al., 2017). Anticoccidial drugs are being used to control coccidiosis in chickens through water and feed. Furthermore, the continuous usage of anticoccidial drugs led to the toxic effects on birds and residual effects of these drugs in poultry products (Ritzi et al., 2016).

The excessive use of anticoccidial drugs has resulted in the development of resistance in *Eimeria* species in various countries like Pakistan. Furthermore, the continuous usage of anticoccidial drugs led to the toxic effects on birds and residual effects of these drugs in poultry production. Next to anticoccidial drugs, using vaccines is another widely used approach in controlling avian coccidiosis. However, vaccines effective in one country may not be effective in another part of the world because of geographical variations of *Eimeria* strains. Furthermore, the use of live vaccines may also trigger coccidiosis outbreaks in poorly managed production systems. Some researchers have reported enhanced protection levels of vaccines, against coccidiosis in broiler chicks, when used in combination with botanicals and probiotics (Sundar et al., 2017).

Evaluation and understanding of the nature and complexity of different *Eimeria* species is an issue of great concern to control this severe disease. Therefore, this study has been designed to check the prevalence of *Eimeria* Species prevalent in crows, peacocks and pigeons of district Multan.

METHODOLOGY

Collection and analysis of samples

Faecal samples were collected from domestic and other different locations of birds including Crows, peacocks and Pigeons to check *Eimeria* parasite presence (MAFF, 1979). Faecal samples were preserved and analyzed under a Microscope using the McMaster Technique following methods described Ryley et al. 1976 and Abbas et al. (2017). A total of 300 faecal samples (crows=100, peacock=100, pigeons=100) suspected of coccidiosis were collected from farms, Zoos and different outbreak cases by visiting in field in different areas of District Multan.

Statistical Analysis

Chi-squared tests were performed to determine the relative abundance of *Eimeria* species in faecal samples.

RESULTS

A total of 300 faecal samples (crows=100, peacock=100, pigeons=100) suspected of coccidiosis were collected from farms, Zoos and different outbreak cases by visiting in field in different areas of District Multan.

In crow and peacocks, 0 samples were found positive out of 100 of each. While in the pigeon, 52 samples were found positive for the presence of *Eimeria* species. Among these 52 infected pigeons, 20 were males whereas 32 were females found positive for *Eimeria* species.

Furthermore, the positive samples were subjected to confirmation by PCR. This shows the presence of *Eimeria labbeana* in the infected pigeons.

Table 1. Prevalence of Coccidiosis in different species in Multan.

No. of Samples	Bird Specie	Positive samples	Prevalence
100	Crow	0	0
100	Peacock	0	0
100	Pigeons	52	52

Table 2. Sex-wise prevalence of Coccidiosis in different species.

Birds Specie	% prevalence	
	Male	Female
Crows	0%	0%
Peacock	0%	0%
Pigeons	38%	62%

DISCUSSION

In recent years the attention of many researchers has been switched toward the poultry industry for t. Several reports proved the positive feedback of different strategies for various diseases increased resistance toward disease prevention, improved health and other interventions in poultry farming. Coccidiosis is an important disease of poultry that infects birds at a larger scale causing economic losses in the world and Pakistan. So, keeping in view the importance of the disease, In the current study, A total of 300 faecal samples (crows=100, peacock=100, pigeons=100) suspected of coccidiosis were collected from farms, Zoo and different outbreak cases by visiting fields in different areas of District Multan. It was found crows and peacocks did not show the prevalence of *Eimeria* species. While in pigeons, a 52 % prevalence of *Eimeria* species was found. 62% prevalence was found in females while it is 38% in male pigeons.

These findings are correlated with Dissanaik and Poopalachelvam (1977) who also reported no *Eimeria* oocysts in crow. Maeda et al. (2013) reported the presence of *Eimeria* species in crows. The results of the study are not in line with the results of the present study. In the present study, no *Eimeria* species were found in the samples. Hauck and Hafez (2012) also reported the absence of *Eimeria* oocysts in peacocks in Germany which supports the findings of the present study.

In the present study, a 52% prevalence of *Eimeria* species was found in pigeons. 62% prevalence was found in females while it is 38% in male pigeons. Muhammad et al. (2017) reported the Prevalence of *Eimeria* species in Nigeria is 19.44%, along with a higher prevalence (20.83%) in females as compared to males (18.06%). Gadelhaq et al. (2015) also performed for confirmation of *Eimeria* species and then later conducted PCR for molecular characterization. Gadelhaq S.M. et al. (2015) also performed PCR for confirmation of *Eimeria* species in poultry. Moreover, Yang et al. (2016) also confirmed the presence of *Eimeria* species in pigeons by performing PCR. These studies are in line with the present study.

CONCLUSIONS

These results show that Coccidiosis is more prevalent in pigeons than in crows and peacocks. It was found crows and peacocks did not show the prevalence of *Eimeria* species. While in pigeons, a 52 % prevalence of *Eimeria* species was found. 62% prevalence was found in females while it is 38% in male pigeons as pigeons are game birds and used to fly all over the areal space of the city, the continuous source of spread of coccidiosis in poultry and other domestic birds. So, Coccidiosis in gaming pigeons should be treated accordingly to prevent the spread of disease in other birds, especially commercial poultry to prevent heavy economic losses.

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