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Prevalence of Cestode Parasites of Gallus Gallus Domesticus in Mehkar Taluka Dist, Buldhana (MS) India

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I. INTRODUCTION

Poultry is an important farm species in almost all countries. It is an important source of animal protein and can be raised in situations with limited feed and housing resources. Chickens are waste converters that convert cavenged feed resource bases into animal proteins. Therefore, by far, the most important species for generating income for rural poor families comes under the below poverty line. It has a delicious taste and is nutritious. It contains essential facts that are necessary for human beings Parasitism is an intimate relationship between two organisms in which one (the parasite) lives on, off, or at the expense of the other (host). Parasitism is an ecological relationship between two different organisms. The parasite is metabolically or physiologically dependent on its host. Heavily infected host may be killed by their parasite. The reproductive potential of the parasite exceeds that of their hosts. The helminths infections are very common in man, domestic animals, and wild-life. Endemic helminth infections are very common in poor tropical and subtropical areas with poor socioeconomic status.

Helminth infection in the gastrointestinal tract of birds is more common and affects their growth rate and organ malfunction. In some instances, there is no apparent disease, but productivity is reduced. The severity of the disease can depend on the type of parasite or the number of parasites involved. *(Fathiu.*1991). Heavy infection is characterized by emaciation, mucoid diarrhea, anemia, paralysis, and death of the bird. Associated with parasitic infection are acute or catarrhal inflammation, maceration, and thickening of gastrointestinal tract.Birds are an important component of the ecosystem, have good food and nutritive value, and are consumed by many people as a basic food. In addition, birds enhance the beauty of nature. As birds are voracious feeders, they consume various types of food that can cause helminth infections. The tapeworm causes great suffering to birds, which causes high morbidity and complications and high economic loss to the nation. They cause diseases such as taeniasis, hydatid cysts, hemorrhages, anemia, diarrhea, and diphyllobothriasis, and disturb the ecological balance.

The study of parasites and their relationship with the host requires a multidimensional approach to understand the nature of parasitism, pathological effects on the host, and taxonomic aspects parasites. One cestode usually infects a few different host species during its life cycle. Birds act as a definitive host; once a parasitic association has evolved, it occupies a specific site and utilizes certain host resources, which is defined as its niche; thus, new species of parasites may evolve from the original progenitor.

Adult tapeworms are found in the intestine of *Gallus gallus domestics* which show some direct effects by invasion and destruction of host cells and tissue, by production of toxic substances and metabolites; as well as by producing mechanical obstructions. The indirect effects of cestode infection in birds include a reduction in host productivity (weight loss, reproduction, etc.), increased utilization of feed, and a reduction in breeding efficiency, ultimately causing disease in humans, which has a socio-economic impact. It is essential to study the biodiversity of cestode parasites found in *Gallus domestics;* therefore, an accurate classification is necessary for the completion of this study. Biochemistry is concerned with the study of the chemical processes that occur in living organisms, with the aim of understanding cell function in molecular terms. (Wilson *and Walker, 2006*). Biochemistry is the study of the structure, composition, and chemical reactions of substances in living systems. Biochemistry emerged as a separate discipline when scientists combined biology with organic, inorganic, or physical chemistry and began to study topics such as how living things obtain energy from food, the chemical basis of heredity, and the fundamental changes that occur in diseases. Biochemistry includes the sciences of molecular biology, immunochemistry, neurochemistry, bioinorganic chemistry, and biophysical chemistry.

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Biochemistry is used in clinical diagnosis, manufacture of various biological products, treatment of diseases, and in nutrition and agriculture. The importance of biochemistry can be seen from the fact that it is used in many day-to-day activities. Biochemistry helps one understand the actual chemical concepts of biology. This is the functioning of various body processes and physiology using biomolecules. Carbohydrates are the most abundant organic molecules. They are used to store energy and genetic information and play vital roles in cell-to-cell interactions and communication. Monosaccharides (Greek: mono-one) are the simplest group of carbohydrates and are often referred to as simple sugars. (*Satyanarayana and Chakrapani*; 2011). Lipids are of great importance to the body as the chief concentrated storage form of energy, in addition to their role in cellular structure and various other biochemical functions. Lipids are broadly classified into simple, complex, derived, and miscellaneous lipids. Lipids are constituents of membrane structures and regulate membrane permeability (phospholipids and cholesterol). They are a source of fat-soluble vitamins (A, D, E, and K). Lipids comprise a diverse range of molecules and, to some extent, are a catchall for relatively water-insoluble or nonpolar compounds of biological origin, including waxes and fatty acids. Fatty acids are carboxylic acids with hydrocarbon side chains. They are the simplest forms of lipids. Lipids An interesting possibility is that trig activity, amplified by helminths, may spread suppression to non-cognate antigens. (*Yazdan Baksh et, maizels RM*, 2001).

II. MATERIAL AND METHOD

Study area: The study was conducted over a period of nearly one year. The study was conducted from June 2022 to January 2023 in Mehkar Tehsil. The aim of this study was to observe the prevalence of domestic chicken parasites in their guts. During the study period, regular visits were made to some selected poultry stalls from Rahmat Nagar Mehkar markets for the collection of intestinal materials from chickens for parasitological study. It is the most famous market in Mehkar district. Buldhana. The authors visited these markets many times during the research study.

1) *Collection of parasites:* From the gastrointestinal tract (GIT): Alimentary canals of chickens were obtained directly from the seller, fecal matter was collected from the rectum, and kept in sterilized zip-locked plastic packets. The samples were transported to the Maulana Azad College Research Center (laboratory) in an ice box and kept in a refrigerator at 4 °C for further examination. A total of 87 samples were collected from various poultry farms and chicken shops in Mehkar. The samples were then transported to the laboratory for pathological investigation. The intestine was cut open, and a simple salt flotation method was used to carefully observe helminth infection. Helminth parasites were collected, fixed in fixatives, and further processed for taxonomic study and identified with the help of a helminthological key. That is Yama gutty.
2) *Identification of parasites:* Parasites are then taken out on glass slides and examined under a light microscope at 10X magnifications for identification. Later, the specimens were removed and preserved separately in properly labeled glass vials containing 4% formalin. Separate vials were labeled for chicken parasites. The identified specimens included cestodes. This identification was performed by Yamaguti.

III. RESULTS AND DISCUSSION

In the totals course of examination, cestode parasites were found in the chicken, where the maximum number of cestodes was observed, whereas in Gallus domesticus, did not get no parasites were observed in broiler chickens. However, in layer chickens, many cestodes were observed. In the present study, the gastrointestinal tracts of 147 chickens were screened for the presence of helminths. In the monsoon season, 24 parasites were recorded, and in the winter season, 35 parasites were recorded. Total 59 parasites are observed which was cestode Cotugnia. The recorded parasites were collected during two seasons: monsoon and winter.

Table 1 June 2023 to January 2024

Months	No of samples examined	No of samples infected	Total no of parasites collected	%of incidences
June	22	5	7	22.73%
July	20	6	11	30%
Aug	14	5	3	35.71%
Sept	15	7	3	46.67

Oct	15	6	8	40%
Nov	11	2	4	18.18%
Dec	12	3	2	25%
Jan	38	17	21	44.74%

IV. CONCLUSION

All chickens (except broiler chickens) were found to have endemically contracted cestode parasites, according to the analysis. This could be related to subpar veterinary care and poor management practices. In addition to correct bird nutrition, hygienic practices, intermediate host removal, and routine deworming of all poultry are advised for improved health and productivity. The results of this study showed a wide range of cestode infections. need to be aware of the sellers and markets of poultry farms. The widespread prevalence of cestode parasites in chickens, particularly Cotugnia, is a significant concern for poultry farmers. This high infection rate, exacerbated by free-range farming and poor sanitation, negatively impacts the health and productivity of chickens, leading to economic losses. Therefore, effective control measures, including improved poultry management and intermediate host control, are crucial for mitigating the detrimental effects of these parasites.

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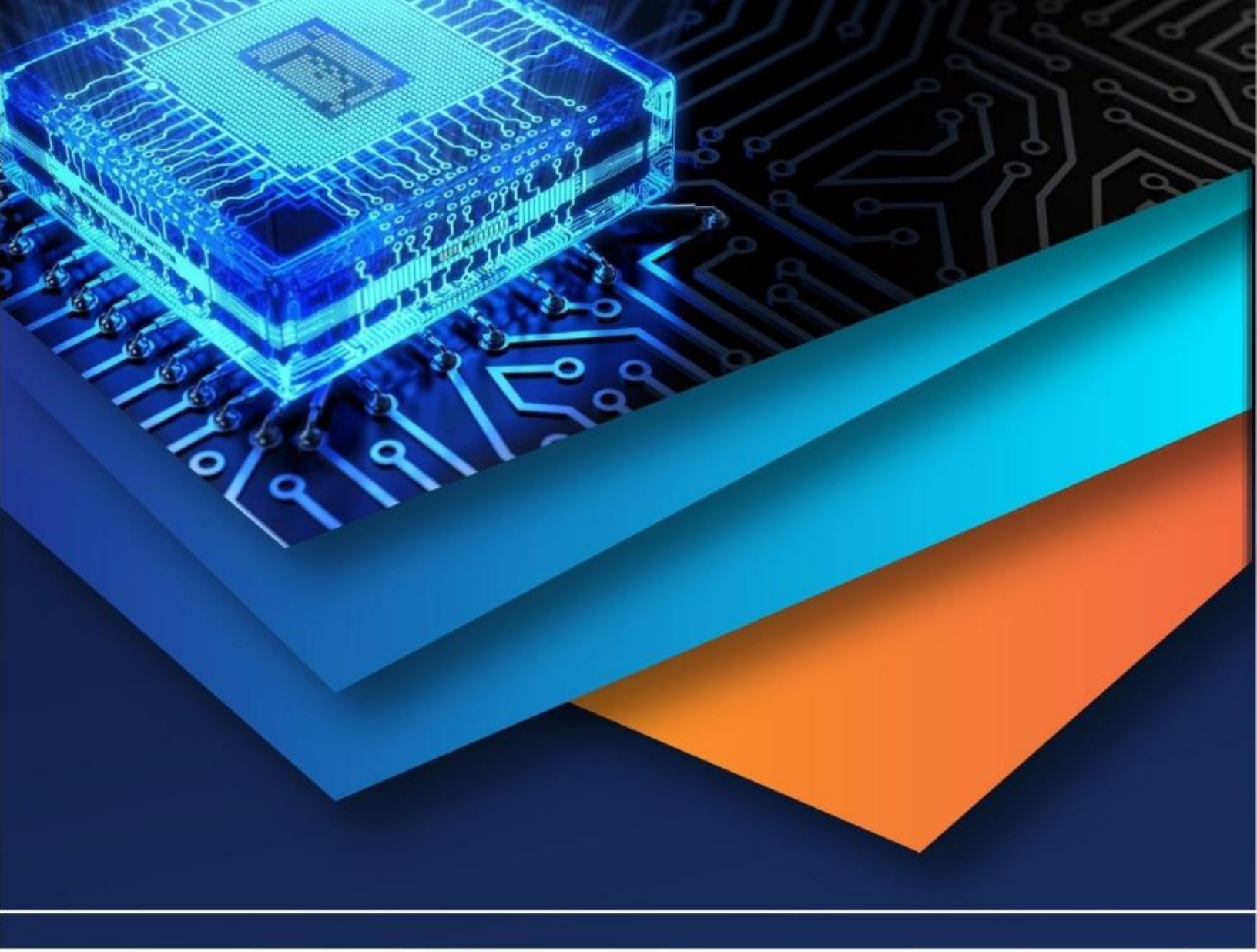

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