

Survey of Endoparasite *Cotugnia Sp* (Platyhelminths) in *Gallus domesticus* from Pune District, (M.S), India

*Kalim Shaikh, *Wasim Shaikh and Hemlata Wankhede

*Department of Zoology,

AKI's Poona College of Arts ,Science & Commerce Camp,Pune-411001

Government Institute Of Science, Aurangabad

Email-drkalimzoo@gmail.com

Abstract :

The present investigation deals with the survey of endoparasite *Cotugnia Sp*, in domestic fowl from Pune district during August, 2013-April, 2014. The study recorded that highest prevalence of parasite in the month of March (65%) and lowest prevalence is recorded in the month of August (30%) between the months of September to January the moderate infection is recorded (38%). It indicates that for the development of parasite various environmental factors are required such as humidity ,temperature , rainfall , vegetation and management practices and availability of intermediate hosts.

Key Words : Endoparasite, *Cotugnia Sp*, *Gallus domesticus*, Pune

Introduction

Livestock animal like domestic fowl, *Gallus domesticus* have a great socio-economic importance than other animals domesticated by humans. It is an important item of human food as well as the source of income due to the production of meat, fiber and other substances. Farmers of this region used fertilizer which is formed from domestic fowl in their fields to increase soil fertility. But these domestic fowl are infected with Helminth infection which is responsible for mortality and economic losses in a number of instances. Humans get automatically infected at the time of eating the infected and uncooked flesh of chicken. The parasitic disease occurs due to the infection of cestode parasites such as *Cotugnia Sp.*, *Davenia Sp.*, *Vallipora Sp.*etc.

Many genera like *Dipylidium canium*, *cotugnia bhaleraoi*, *Raillietina tetragona*, *Echinococcus granulossus* are study of taxonomy, Prevalence of host-parasites relationship. The cestodes belonging to *Cotugnia* Diamare,1893(Phylum Plathyhelminthes; class Cestoda; subclass Eucestoda; order Cyclophyllidea; family Davaineidae) are the second most prevalent avian helminth parasite, and are common epidemic species in domestic chick,(*Gallus domesticus*).Infection by *Cotugnia* can affect the growth rate, and cause body weight loss and digestive tract obstruction. The genus *Cotugnia* (Diamare,1893) & so many workers studies on its taxonomy but Mitra &Shinde(1980)studies histopathology of the cestode *Amoebotaenis* in *Gallus domesticus*. Borvenska and Carira (1993) studies mode of attachment and pathogen city of tapeworm infecting the spiral intestine of the nurse shark. Mohamed M. and Agbed G.

(1995).Observed a gastrointestinal helminthes infection of domestics fowl in discharge western Cameroon.

Fake et.al 1991 showed that 92% of the local chickens in eastern Nigeria were infected with at least one or more species of gastrointestinal helminthes during the dry season. The present study is a follow up study, conducted in the months of different seasons with the intention of complementing and adding to the existing knowledge.

Material & Method

The cross sectional study was carried out in Pune district Maharashtra, India. The total of 180 slaughtered domestics fowl intestines of both sexes where randomly selected from the area under study over a period from August 2013-April 2014. A total of 180 intake whole intestine of a Desi birds where collected from local poultry stalls. The intestine were dissected longitudinally and examined for the infection of cestode parasites. The adult cestode parasites recorded from intestine where preserve in hot 4% formalin for identification. All cestodes are counted before being fixed. Parasites were stained with Acetocarmine stain, transferred to xylene for cleaning before mounting in DPX (Daxtril Plasticized Xylene).

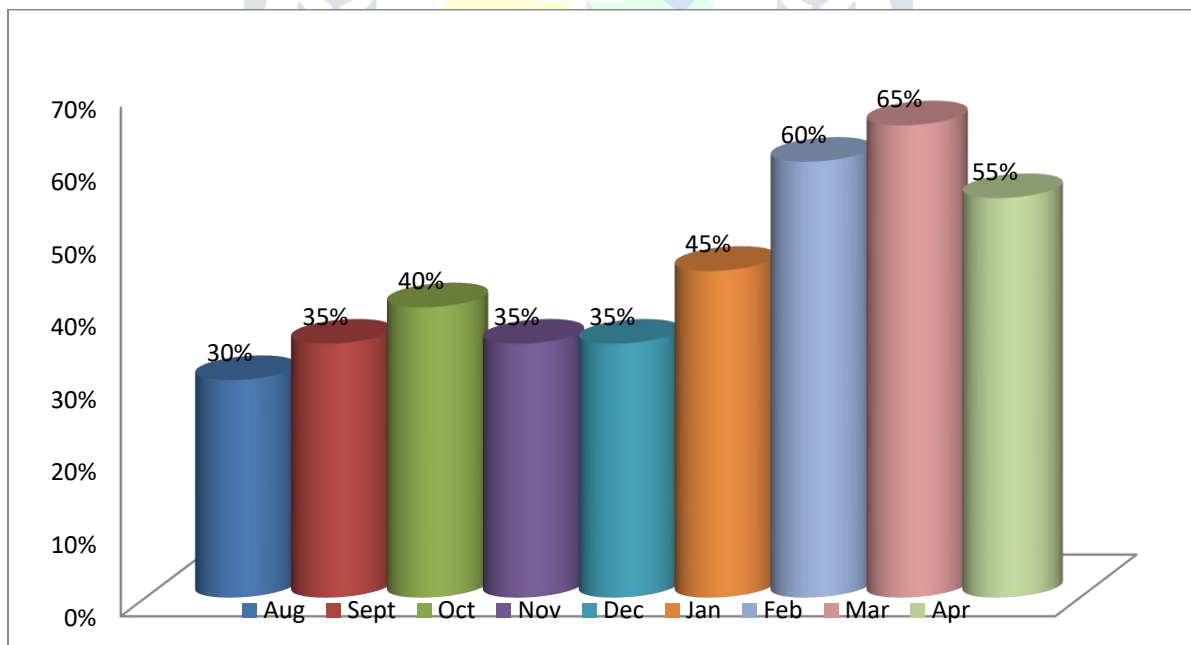
Statistical Analysis:

The following formula was used to calculate Prevalence of parasite.

$$\text{Prevalence} = \frac{\text{No of Host species infected}}{\text{No of Host examined}} \times 100$$

Results:Table- The monthly prevalence of cestode parasite *Cotugnia sp.* (diamera, 1893) in *Gallus domesticus* during August 2013-April 2014 from Pune district.

Months	No Examined Host	No Infected Host	No Parasite Collected	<i>Cotugnia</i> Species	Total Prevalence %
August	20	6	7	5	30%
September	20	7	10	8	35%
October	20	8	9	7	40%
November	20	7	10	9	35%
December	20	7	13	11	35%
January	20	9	11	8	45%
February	20	12	16	15	60%
March	20	13	13	11	65%
April	20	11	11	6	55%
Total	180	73	95	80	40.55%

Graph-: Graphical representation of monthly prevalence of *Cotugnia Sp.* (Diamera, 1893) in *Gallus domesticus* during August 2013-April 2014 from Pune district

In the present study 180 *Gallus domesticus* were screened for the presence of gastro intestinal cestode parasite. Among 180 about 73 were found positive of gastro intestinal parasites by gross examination of gastro intestinal tract. The intestines of *Gallus domesticus* were infected with

cestode mainly *Cotugnia species*. The total prevalence of *Cotugnia species* recorded as (40.55%). The highest infection rate was found in the months of February & March (60%) and (65%) respectively followed by in the months of October to January in average (38%) and the lowest infection was recorded in months of August & September (30%) and (35%) respectively.

Discussion:

In the present findings the overall prevalence rate of *Cestode* parasite (*Cotugnia Sp*). in *Gallus domestics* recorded as (40.55%). The highest infection rate was found in the months of February & March (60%) and (65%) respectively followed by in the months of October to January in average (38%) and the lowest infection was recorded in months of August & September (30%) and (35%) respectively. that the *Cestode* infection is a common problem in the study area. The observed total prevalence of tapeworms in the alimentary canal of infected chickens might be due to consumption of infected droppings or infested intermediate hosts of parasite. Such as beetles, cockroaches, earthworm, flies and grass hoppers in poorly manage stocks. (Abdu, 1987)

The present results are correlated with many previous findings which are discussed here Shahin A.M et al, (2011) reported prevalence of cestode parasite in chicken the recorded species of *Raillitina Sp* was recorded in high incidence (100%) during December, April and May meanwhile in a low incidence (50%) during June, July and August.

Same author recorded *Cestode* parasites during the study an infestation incidence at different seasons the highest incidence recorded as summer (5.54%) and autumn (5.6%) and lowest incidence during winter (3.3%) and spring (2.2%). The present result the highest prevalence of cestode parasite also recorded in summer seasons like month of February and March.

FAKE, B.B.et.al (2013) reported the prevalence of helminthes in the domestic fowl (*Gallus gallus*). They were observing monthly incidence of the helminthes of the chicken range farm 94-100%. One cestode species *Raillitina, Tetragona* was observed and it had the highest prevalence rate of 92.5% of screened birds. The overall prevalence of *Cestode* parasite in *Gallus domestics* (71%) recorded in the presence study was slightly lower than those recorded by FAKE, B.B.et.al (2013).

Kalim Shaikh et , al (2011) also studied the seasonal variation of gastro-intestinal cestode *Moniezia* shows the higher prevalence which occurs in winter (56.55%) followed by summer (51.05%) and low prevalence found in Monsoon (13.53%).

Gadazama and Srivartava (1986) and Fake.et.,al(1991) to had 90, 92 and 92% resp. this could be explained by the fact that this was carried out during rains which is consider favorable for the development of survival of the parasitic stages of this helminthes (Chiejina et al, 1989) the mean worm burden and incidence was recorded in months of February and March which is correlate with above finding.

The previous study strongly suggest that the local chicken manage under free range conditions are heavily parasitized. Specially during in summer season.

Dhanraj Balbhim Bhure ,et al.(2013) recently study status of *Cestode* parasite in domestic fowl from Nanded they reported the high prevalence of *Cestodes* from domestic fowl during summer season followed by winter season where as low prevalence where reported during

monsoon season so the present finding showing similarity with this study. The similar result also given by Naphade S.T (2013) the prevalence of helminth infection in Broiler poultry Birds from Marathwada Region they reported seasonal prevalence percentage of helminthes infection was highest during summer followed by monsoon lowest during winter season and the values were found (60.24%) (53.54%) & (40.78%) respectively.

In the present study the prevalence of *Cestode* parasite in *Gallus domestics* is quite comparable the above finding .The high prevalence of *Cotugnia* sp. recorded in the months of February and March means in the summer season. The severity of infection also vary depending upon local environmental condition such as humidity ,temperature , rainfall , vegetation and management practices.

The prevalence of helminth parasite recorded during the study was *Cotugnia* sp. with the prevalence of (40.55%) this finding are more or less similar to the workers (Tesfaheywet Z et al;2012) and (Eshetu,et al 2001) in Ethiopia the reported the prevalence of *Raillitina* sp.(22.4%) & (25.84%) respectively.

The incidence is depend upon management practices in that particular area. the present study revealed that helminthic infection is commonly found in unmanaged condition poultry birds. The most common *Cestode* sp in poultry birds *Cotugnia* . the incidence of infection in relation to season was found higher in summer than the winter and monsoon season. The species which most prevalent affecting the health of poultry birds.

Conclusion:

In conclusion, more consideration should be focused towards improvement of the poultry management and carefulness of local variety. There is so, the necessity to supplement scavenging poultry with energy sources (Obi and Sonaiya, 1995).

This could be due to difference in the seasons of conducting these studies availability of intermediate host, individual host register and ecological parasite such as temp, humidity etc.

The identification of parasite is the first step of controlling the parasitic infection of *Gallus domesticus*. The study is helpful to newcomers to learn the fundamentals of diagnostic procedures and how to use a microscope to identify parasites by using new designed protocols. To keeping this view the present study is carried out. It is hoped that the information provided would help in planning of effective control measure against gastrointestinal parasites and thus improve the productivity of the indigenous domestic fowl as well as improving public health and good practices of seasonally for management of poultry birds.

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References

- Abdu PA (1987):** infectious bursal disease in pullet chicks. *Avian Dis* 31:204-205.
- Aini, L(1990):** Indigenous chicken production in South East Asia. *World's Poultry Science Journal*, 46:51-57.
- Bandgar S.S (1992):** Studies on cestode parasites of vertebrates from Sangli and Kolhapur Districts. Ph.D. Thesis, Marathwada University India.
- Borvenska and Caira (1993):** Mode of attachment and pathogen city of tapeworm infecting the spiral intestine of the nurse shark.
- Braun M. (1900):** In H.G. Broun, *Klassen und Ordnungen des Thleir Reichs, Band IV vermes; Abtheilung I. B. cestodes. Leipzig. 927-1731.*
- CHIEJINA, S. N., AND FAKE B. B. (1989).** The ecology of infective larvae of bovine gastrointestinal trichostrongylids in dry contaminated pastures in the *Nigerian derived Savannah. Journal of Helminth*, 63:127-139
- Dharaj Balbhim Bhure; Sanjay Shamrao Namware, Namware V. Sunnap. (2013):** Status of diversity of cestode parasitic of Domestic Fowl (*Gallus gallus Domesticus*) from Nanded district, Maharashtra state. *Indian Journal of applied research*, Vol 3, issue,10:1-4.
- Eshetu Y, Mulualem E, Ibrahim H, Berhanu A and Aberra K, 2001:** Study of gastro intestinal helminthes of scavenging chickens in four rural districts of Amhara Region revision *Sci techniques office Inter-Epizooti.*, 20(3):791-796.
- Euhrmann O. (1908):** Nouveaux Tenias d oiseaux. *Rev. Suisse. Zool* 16:27-73
- Fabiyi, J.P. (1972):** Incidence of helminth parasites of the domestic fowl in the Vom area of Benue-Plateau state, Nigeria. *Bulletin of Epizootic Disease of Africa*, 20:229-234.
- Fake B.B and PAUL-ABIADÉ, C.U. (2003):** Rainy season period prevalence of helminthes in the domestic Fowl *Gallus gallus* in Nsukka, Eastern Nigeria. *Nigerian veterinary journal* vol .24(1)21-27, (2003).
- Fatih, M.Y., Ogbobu, V.C., Njoku, C.U. and Sarror, D.I. (1991):** Comparative studies of gastrointestinal helminth of poultry in Zaria, Nigeria. *Revue d'e' elevage Medicine Veterinarian Pour Pays Tropaux*, 44(2):175-177.
- Fatih, M.Y., Ogbobu, V.C., Njoku, C.U. and Sarror, D.I. (1991):** Comparative study of gastrointestinal helminth of ppoultry in Zaria, Nigeria. *Revue d'e' elevage Medicine Veterinarian Pour pays Tropeaux*, 44(2): 175-177.
- Frantovo, D. (2000):** Some parasitic nematodes (*Nematoda*) of birds (*Aves*) in the Czech Republic. *Acta Societatis Zoologica Bohemicae*.
- GADZAMA, E. N. AND SRIVAS JAVA, G. C. (1986).** Prevalence of intestinal parasites of market chicken in Bornu State. *Zariya vet.* 1: 126-128

- Kalim Shaikh, Nirmale Manoranjana and Dhanraj Bhure (2011)** Seasonal variation of *Moniezia* (Blanchard,1891), (Cestoda) in *Capra hircus* (Lin.1758) from Aurangabad district (M.S) India. *Bioscience Discovery* volume 2 no.2 pp- 199-200
- Kharade S.V. (1992):** Studies on cestode parasite of the vertebrates form Satara and Sholapur District. Ph.D Thesis Marathwada University India.
- Kurkure, N.V., S.W. Kolte, A.G. Ganorkar and A.G Bhandarkar, (1998):** Raillietinia cesticillus in pigeon (*Columbia livia*). *Indian Vet., J.*,75:835-836.
- Ludwig H. (1886) :** In: Handbuch for hohere lehranstalte und fur Alle welche sich wissenschaftlich mit der Naturgeschichte der thiere beschaffigen wollen. 3 ganzlich umgearbeitete, Vermehrte Auflage (Vol. II) Hannover.
- Luka, S.A and Ndams, I.S. (2007):** Gastrointestinal parasites of domestic chicken *Gallus gallus domesticus* Linnaeus 1758 in Samaru Zaria, Nigeria *Science World Journal*, 2(1):27.
- Matur, B.M (2002):** Prevalence of some gastrointestinal parasites in pullets of chickens (*Gallus gallus domestica*) in the Federal Capital Territory Abuja, Nigeria *Journal of tropical Biosciences*, vol. 2(1): 78-82.
- Meggitt F.J (1927):** Report on a collection of cestode mainly from Egypt. I. Familier Anaplocephalidae and Davaineidae. *Parasite*. 16:314-327.
- Mitra K.B. and Shinde G.B,(1980):** Attachment of *Davainea sp.* To the villi of *Gallus domesticus* .*Bioresearch* . 5(1); 89-90
- Mohamed M. and Agbed G.(1995):.** A gastro intestinal helminth infection of domestic fowl in discharge western Cameroon. *Reveiw elevage de Medecine Veterinae despays tropicaux* 48(2): 147-157
- Nair, K.V. and A.M Nadakal, (1981):** Hematological changes in domestic fowl infected with cestode. *Raillietinia tetragona* (Molin, 1958). *Vet. Parasitol.* 8:49-58.
- Naphade S.T (2013):** Studies on the prevalence of helminthic infection in Broiler poultry birds from Marathwada Region, (MS) India *Science Research Reporter*, 3(2):233-238.
- Oniye, S.J., Audu P.A., Adebote, D.A., Kwaghe, B.B., Ajanusi, O.J. and Nfor, M.B. (2001):** Survey of Helminth Parasites of Laughing Dove (*Streptopelia senegalensis*) in Zaria, Nigeria. *African Journal of Natural Science*, 4:65-66.
- Oyeka, C.A. (1989):** Prevalence of Intestinal helminthes in poultry farms in Anambra State, Nigeria. *Bulletin of Animal Health and Production in Africa*, 37:217-220.
- Pandey, V.S., Demey, F. and Verhults, A. (1992):** Parasitic disease: A neglected problem in village poultry in sub-Saharan Africa. In: Pandey, V.S and Demey F. (Eds). *Village poultry production in Africa* Rabat, Morocco, Pp 136-141.
- Permin, A and Ranvig, H. (2001):** Genetic resistance in relation to *Ascaridia galli* in chickens. *Veterinary Parasitology*, 102(1-2): 101-111.

- Permin, A, Hansen WJ, 1998:** Epidemiology, Diagnosis and Control of Poultry Parasite: Food and Agricultural Organization of the United Nations Roma.
- Pokale B.A. (1992):** Studies on cestode parasites of vertebrates from Ahmednagar District in Maharashtra. Ph.D. Thesis Marathwada University India.
- Railliet A. and Henry A. (1909):** Les cestode des oiseaux par O. Fuhtmann. Rec. Med. Vet. 86:337-338
- Shahin, A.M; Lebadah,M.A, Abu-Elkheir, S.A and Elmeligy,M.M. (2011).** Prevalence of chicken cestodiasis in Egypt. New York Science Journal. 4(9) 21-29
- Sonaiya, E.B (1990):** The context and prospects for development of Small holder rural poultry production in Africa. Proceedings CTA International Seminar on small holder Rural Poultry Production. *Thessalaniki, Greece*, 1:35-52.
- Southwell T. (1922) :** Cestode from indian birds, with a note on *Lingula intestinalis*. Ann. Trop. Med. Parassitol. 16:355-382.
- Spassky A.A. (1954). :** Pseudoparasitism of cestodes-Hymenolepids of rapacious animals. Dokl. Akad. SSSR 7:172-175.
- Tesfaheywet Z, Amare E and Hailu Z, 2012:** Helminthosis of chickens in selected small scale commercial poultry farm in and around Haramaya Woreda, Southeaster Ethiopia, j, Vet. Adv 2(9):462-468;
- Yegani, M, Korver, DR, 2008:** Factors affecting intestinal health in poultry. Poult. Sci. 87, 10:2052-63.