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Address for correspondence:
Gokul G. Chaudhari
Department of Zoology, Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Arts, Science & Commerce College, Beed. District Beed, MS, India
(Affiliated to: Dr. Babasaheb Ambedkar Marathwada University, Aurangabad)
Email:
chaudharigokul6@gmail.com

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Studies on Gastrointestinal Helminth Parasites of *Gallus gallus Domesticus* in Tribal Region Surgana, Nashik District, (MH)

Gokul G. Chaudhari[1], Premchand B. Sirsat[2]
[1,2] Department of Zoology, Mrs. Kesharbai Sonajirao Kshirsagar Alias Kaku Arts, Science & Commerce College, Beed. District Beed, MS, India
(Affiliated to: Dr. Babasaheb Ambedkar Marathwada University, Aurangabad)

Abstrct

Present status not only in India but worldwide domesticated animals provide good financial support to farmers, out of these animals the gavthi chickens is the best domesticated fowl to be used for food. In this context, this project was studied on the gastrointestinal helminth parasites from different villages of gavthi chicken (Gallus gallus domesticus) found in the tribal areas at Surgana tahsil of Nashik district, (MH), About 50 samples randomly were collected from slaughter house and local chicken market of some selected sites at Surgana tahsil. Where they study their habit and habitats most of the villages are the chickens feeding in dirty places such as bare, forested, dung, etc. Poultry breeds and gavthi breeds were completely different from their native chickens mostly feeding randomly around the village. The bread commonly called like gavthi /desi (local chicken) high number of parasites infections were seen among the in local chicken (gavthi). The cestodes and Nematodes were found in different hosts body, few are mixed infected. Helminth parasites were found them identified species is Choanotaenia infundibulum spp. Were gavthi chickens roughly with the cestodes parasites are more common observed. This study was also observed on their interactions between environment and their feeding free range around the houses and specially dirty sites, maximum samples was infected with the gastrointestinal helminth parasites.

Key Words: *Parasites, Cestodes, Helminthiasis, Tribal region, Local chicken, Choanotaenia infundibulum spp.*

Introduction

The intestinal track helminth parasites when stay inside of the host body of intestine; And they consumed nutritional part of host body of gastrointestinal tract. The all-helminth parasites cellular metabolisms metabolism stays upon the feeding habits and the high nutrient are available in the gastrointestinal gut of the host body. And these helminth parasites use this nutrient for their normal survival, growth and development purpose. The domestic fowl such as gavthi chicken are affected by the different environmental conditions. A domestic fowl especially local chickens or gavthi (*Gallus gallus Domesticus*) is the best common fowl to use as domestic purpose for economically supporting, the poultry farmers keep chickens primarily as a source of food, consuming both their meat and their eggs. In the India helminth parasitic diseases in chicken are biggest problems for that their economically losses in the country. Household fowls are more frequently infected due to poor management practices, malnutrition, lack of veterinary information's, and their complicated life cycle of helminth parasites.

Chickens affected with helminthiasis seen slow growth, low eggs produced, loss weight, ultimate increase mortality, Gastrointestinal tract of helminth parasites are mostly affected of their normal growth and their productivity. In tribal village areas of Surgana tahsil, chickens (gavthi or desi chickens) are highly chickens are feed free range they have not proper management for their shelter, always feen on dirty site and then ultimately affected by different diseases and parasites commonly helminth parasites. various types of helminths parasites (Cestodes and Nematodes) are more common to infect the chicken: Their eggs and immature stages of helminth parasites can live outside of the host body for long time. Achieve many years, some others parasitic worm spends their life cycle in other animals like earthworms, slugs, insects, and snails etc. Chicken picks up worms by eating dirty or litter contaminated with worms' eggs or by eating small animals carrying immature paltforms of worm (Janquera, 2017). Parasitology is the to study of parasites from different organisms and their relationship between and host organism, all parasites depend on another host organisms for their consuming of nourishment and living, parasites are not easily seen of necked eye they seen under the microscope in the delayed 1600s,

The microscopic parasites observed by Dutch scientist Anton von Leeuwenhock (1632-1723) and they were first person to observed parasites. The parasites gain all benefits from the host and the host may causing many different types of diseases, infection and weakness to the host body and the result come out parasitic attack.

Material and Methods

a. **Study area:** Tribal area of Surgana tahsil selected as a study area for the current investigation purpose and its position on Indian map (Latitude 20.5605° N and Longitude 73.6374° E) district of Nashik, Maharashtra, climate condition is mainly dry but in rainy season it's to high moisture condition because it receives 174.80 mm of rainfall yearly. An average seasonal wise temperature is 21.2° C to 31.8° C.

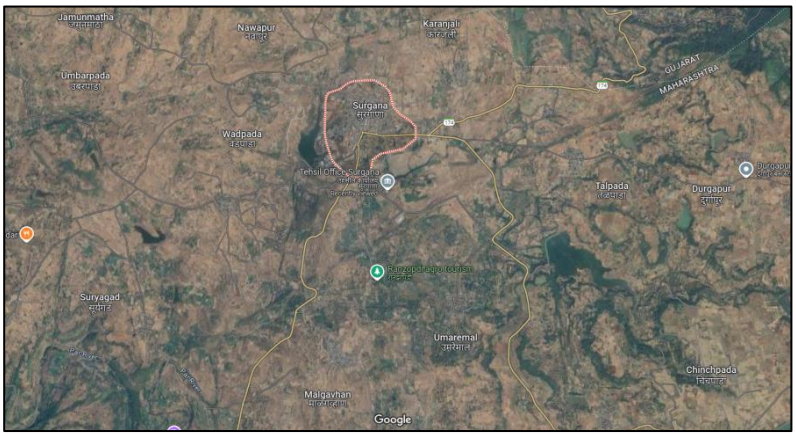

Fig. (a): Google photo of Surgana tehsil

b. **Samples collection (Gastrointestinal tract of gavthi chicken from different sites):** In the recent study for concluding trendiness of gastrointestinal helminth parasites of gavthi chicken (*Gallus gallus domesticus*) that are affected by different environmental conditions, A sample of 50 gastro-intestinal tract collected were randomly in an airtight polythene bag from tribal areas of Surgana tahsil, in between November 2022 to March 2023. The sample was transported to the laboratory for further study.

Fig. (b): Sample collecting site (Slaughter house)

c. **Examine of parasites:** The Gastrointestinal samples were spread out into dissecting petri dish each and every sample spread into various section, on the intestinal surface lumen were removed by the small brash, and then washed with saline water, cut the intestine in centimetre with help of bend scissor; And the carefully remove parasites are if found by the brash (1). Collected the whole helminth and visible worms such as Nematodes and were fixed, preserved in a glass specimen bottles have 10% formalin. The covered mucosal membrane of the lumen was then spread into petri dish and observed below the various microscopes (Light microscope and Compound microscope) to observed small size helminth parasites (Cestodes and Nematodes) and their morphological identification as described by (2). Gastrointestinal tract between small and large part of infected intestine was cut and opened precisely by the surgical bend scissor to examined the parasites. The little parts of affected intestine were also cut and transported into 10 % Formalin for the further study purpose.

d. **Preparation of permanent slides of parasites for study:**

Fixation: The helminth parasites (Cestodes, Nematodes) were fixed in Carnoy's fixative. After fixing, the parasites preserved into different formalin grade (4% and 10%) for the further study.

Dehydration: The helminth parasites sample were dehydrated into different alcoholic grades in the ascending order different ascending alcoholic grades like 30%, 50%. 70%. 90%, and 100% etc. 15-30 minutes in each alcoholic grades and then removing of alcohol that means dealcoholisation into Xylene.

Staining: Parasites were stained in aceto-carmine, and destaining with the help of different alcoholic grades as well as xylene.

Mounted in DPX (Dibutyl phthalate Polystyrene Xylene) and the perform slides were examined under the below 10x, 15x, as well as 45x lens to identify the Gastrointestinal helminth parasites of gavthi chicken (*Gallus gallus Domesticus*). Then draw the diagrams with help of Camera Lucida. Measures all sketch in the millimeter (Shukla S.J., 2012).

e. Prevalence of helminthiasis: Prevalence of helminth parasites were found as per formula given describe as bellow.

$$Prevalence = \frac{Total\ number\ of\ hosts\ infected}{Total\ number\ of\ hosts\ examined} \times 100$$

f. Observation table:

To prevalence rate based upon different places of tribal areas from Surgana tahsil of the local chicken (Gavthi) were examined.

Sex	No. of samples examined	No. of infected	No. of uninfected	Prevalence (%)
Randomly samples collected from slaughter house and local chicken market	Sample- Gavthi (Local chicken or Desi chicken)	32	18	64%
Total		**32**	**18**	

The poultry farming is combines very well with other animal husbandry, it providing good economical source of local farmers, the local chickens are daily diet commonly is around the sewage area of house, and they direct contact with infected foods. Prevalence of Gastro-intestinal parasites is still more uncontrolled of the Surgana tahsil.

Result

In this study between November 2022 to March 2023 we find out large amount of Cestodes parasites, among them the one is identified (i.e. *Choanotaenia infundibulum*). In this study of helminthiasis gives larger parasitic infection from the results of different types of helminths parasites, it is showed dominant Cestodes parasites than the Nematodes parasites during this month. High amount of repeating of Helminth parasites may due to environmental support for growth of the parasites, the present study is suggesting to incidence of parasites depends on the favourable climates required for their development. The spreading of helminth parasites that are live inside of the host body i.e. gastrointestinal track, the helminth parasites, such as species hardness of diseases also world widely. The tribal environment situations such as rainfall, vegetation, humidity, temperature and management culture, the weather demands are separation for distribution and spreading of diseases. Also observed that in resources dirt poor region of tribal areas and also unknown management practices. The world infections by helminthiasis parasites for the losses of economically through reducing productivity and enhanced mortality. The effect on climatic factors on helminthiasis has been extensively studies by (3,4). The helminth parasites exert their influence on livestock in progressing communities by (5).

Discusion

The local tribal areas of around the Surgana tahsil, the chicken's production is very low input low output by local chicken poultry farms management and also including small herds and grasses near to get their feed. The low productivity mostly causing by varieties of infections, poor management system, lack of knowledge about poultry farming, also lack of supplementary feed. In this study result displayed a broad variety of Cestodes and less numbers of Nematodes than the Cestodes parasites infection around the tribal areas of Surgana tahsil, specially found on local chicken (Gavthi or Desi), These local villages gavthi chicken enhance the nutritive status of rural communities and the landless along with income community through the requirement of eggs and their meat. Domestic fowl are similarly used for socio-culture justification purposes (6) and have some social and religious taboos (7). The gastro-intestinal parasites always showed low productivity of poultry farming. Study it is also indicated that the proportion of females is higher than that of males. However, the scope of these study areas may vary leads to potential exposure of market chickens to defected feed and environment. The gastrointestinal track parasites are the most prevalent and most destructive parasites high impactful of village chicken productivity (8). The need for further study on economically significance of Nematodes and Cestodes parasites around the Surgana tahsil.

- **Choanotaenia infundibulum spp.**

Conclusion

The studies on gastrointestinal helminthiasis parasites in local chickens (*Gallus gallus Domesticus*) in the tribal region of Surgana tahsil, from Nashik district of Maharashtra, the diversity and impact of parasitic infections on local chickens is highly observed.

a. **Diversity of parasites: This** study was identified a high range of gastrointestinal helminths, such as cestodes nematodes as well as nematodes, with cestodes was most commonly was found. This study suggests a strategy into a specific type of parasites in a particular region.
b. **Risk factors:** Factors was found as poor feeding management skills, poor sanitation, free range of feeding specially observed the dirty sites such as sewage area, dung. Less vererinary care contributed to highly infections was found.
c. **Impact on poultry farming:** Helminth parasitic infections are reduced growth rate, less eggs productions, and general health issues in the chickens, this study highlights to need for good management practices to decreased impact of these parasites for the local chickens' communities.
d. **Prevalence of infections:** The local chickens were found to the infected with various gastrointestinal helminth parasites, the poultry farming health to improve productivity and reduces economical losses.

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Conflicts of Interest
The authors declare that there are no conflicts of interest regarding the publication of this paper.

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