



**POTENTIAL OF DOMESTIC CHICKENS IN TRANSMITTING PARASITES OF
CLINICAL IMPORTANCE IN TELANGANA REGION, INDIA**

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INTRODUCTION

The chicken (*Gallus gallus domesticus*) is a domesticated fowl, is the widespread domestic animal. Chickens belong to kingdom Animalia, phylum chordata, class Aves, order Galliformes, family Phasianidae, subfamily Phasianinae, genus *Gallus*, species *G. gallus*, subspecies *G. g. domesticus*. There is an unprecedented increase in chicken population all over the world. Human keeps chickens primarily as a source of food, consuming both their meat and their eggs. Human first domesticated chickens of Indian origin for the purpose of cockfighting in Asia, Africa, Europe. In UK and Ireland adult male chicken over the age of 12 months are known as cocks, where as in America, Australia and Canada they are more commonly called roosters. Males less than a year old are called cockerels and castrated roosters are called capons. Female over a year old are known as hens and younger females as pullets. Although in the egg laying industry a pullet becomes a hen when she begins to lay eggs at 16 to 20 weeks of age. The young ones are called as chicks and the meat is called chicken. In the deep south of the US chickens are also referred as the "yardbird". Chickens are the most abundant and omnivorous bird in the wild. Mostly they are present in open places, houses and poultry (Eyrinnaya, 1993). They often scratch at the soil to search for seeds, worms and even larger animals such as lizards, small snakes or young mice. So they become infected with different parasites which are already present in the soil. So some parasites have been found in the external and internal body parts of chicken. Findings have also shown that exposure to chicken antigen may play an important role in asthma related health problems. (Montessoro et al., 1998).

The risk to human health arising from chicken infestation has been reported (Chandler, A.C and Read, C.P). Chickens frequently feed on the worms present in human feces, and therefore they can disseminate cysts of enteric protozoans in the environment if such



contaminated faces are present in the soil which is going to be scratch and contaminate food by leaving bacteria present on the feathers but also cause food poisoning so the bacteria present on the body by the way of air comes and enter to the opened food material (Cheghani et al., 1993) but they can also transmit bacteria, fungus, and other pathogenic microorganisms in infected areas (Kopanic, 1994). So have copious opportunities to disseminate human pathogens (Soulsby, L.J.E., 1982). This work was therefore designed to isolate and identify parasites from the external surface of chicken in Telangana state, INDIA. The findings may be of immense benefit to the residents of the area and other areas within and outside Telangana, as it will help to educate them on the dangers posed to them by the presence of chickens in their houses. The different parasitology probably vectored by the chicken in the study area.

MATERIALS AND METHODS

STUDY AREA

The study area was Telangana state, INDIA. The study area has both hot and cold seasons. The hot season reaches its peak between February and May, while the cold season has its peak between October and January. And the rainy season is June to September. The mean maximum temperature is about 40 degrees centigrade and mean minimum temperature is 20 °C (Yakuba and Singh 2001).

SAMPLE COLLECTION

A total of 218 chickens were collected from different locations in the study area, June to January 2012 to 2013. And chicken brought was transported to zoology laboratory, euthanized alone in a killing large transparent bucket using chloroform and then examined the sex stage of development of chicken were identified.

ISOLATION AND IDENTIFICATION :

After identification each chicken was placed in a 10 liters transparent bucket having 6 liters of normal saline. The bucket was shaken vigorously for 10 minutes to detach any parasites or their stages from the external body of chickens. Thereafter the upper fluid was transferred to a



centrifuge tube and centrifuged at 3000rpm for 5 minutes. After decanting the excess top fluid, the residual deposit was placed on a clean glass slide, covered with a cover slip and stained with lugols iodine and viewed under the X40 microscope objective lens. The parasites and their stages encountered were identified and counted.

STATISTICAL ANALYSIS

Descriptive statistics was used to analyze the prevalence while chi square analysis was used to determine association and significant differences the parameters tested at ($P \leq 0.05$)

RESULT

A Total of 218 chickens were studied all were identified as *Gallus gallusdomesticus*, males (72) , female (73) ,145 chicken were adult while 73 were at chick stages . The result shows that out of 218 chickens brought and examined for the presence of parasitic stages ,169 were found to be carrying different stages of parasites prevalence infection shows that out of 169 chickens 72(29.7%) adult male, 73(47.54%) adult female and 73(78.08%)chicks were infected with different types of parasites. (Table: I) .

Clinically important parasites were found during the survey include cyst of *Entamoebahistolytica* , ova of *Ascarislumbricoides* , and eggs of *Schistosomamansoni* , *S . haematobium* and *Enterobiusvermicularis* . There was no significant difference ($p > 0.05$) in the occurrence of these parasites on the external parts of chicken. *E. histolytica* was the most encountered (40.83%) followed by *A. lumbricoides* (28.40%) , then *E. vermicularis* (15.98%) , *S. mansoni* (9.48%) , *S.haematobium* (2.95%)Graphs (1-5)

Table1: Number of infected chickens in the study area

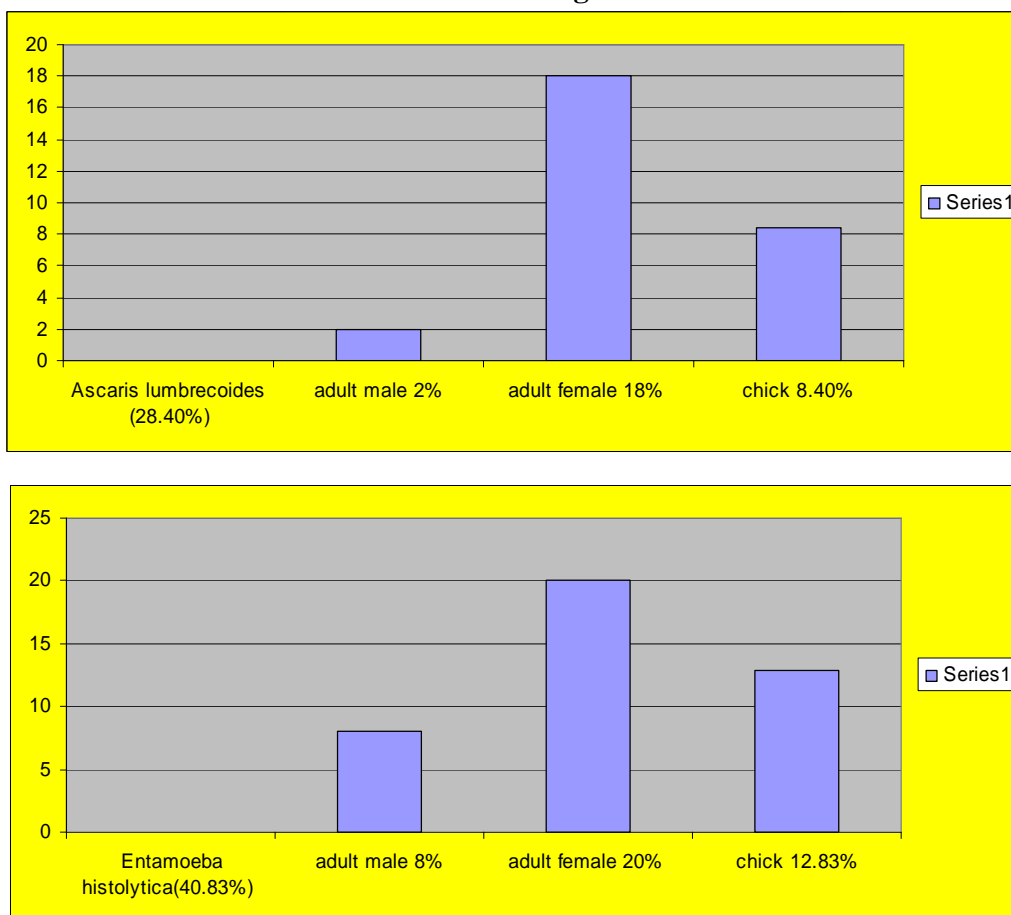
Infected chickens at at different stages	No. examined	No.Positive
Adult male	72	50(29.7)
Adult female	73	62(47.54)
Chick	73	57(78.08)
Total	218	169(77.52)



Values in parenthesis are percentage of infected chickens in the study area at different stages.

The developmental stages of the chickens were equal in their potential ($P > 0.05$), although 15.7(83.51%) adult were carrying parasites as against chicks (47.22%)(Table,3). Based on the location of the parasites found percentage in open places, houses, and poultry shown in the (figure 2) and result showed that carrying capacity, followed by open places(50%), houses(28%), poultry(20%).

Figure 2: Parasite found rate in chicken from different locations of the study area at different stages.



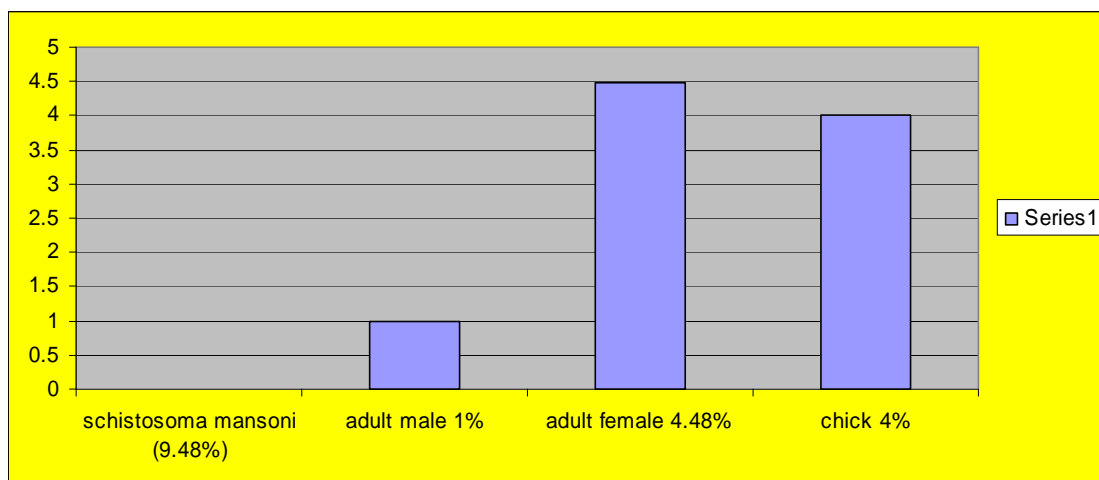
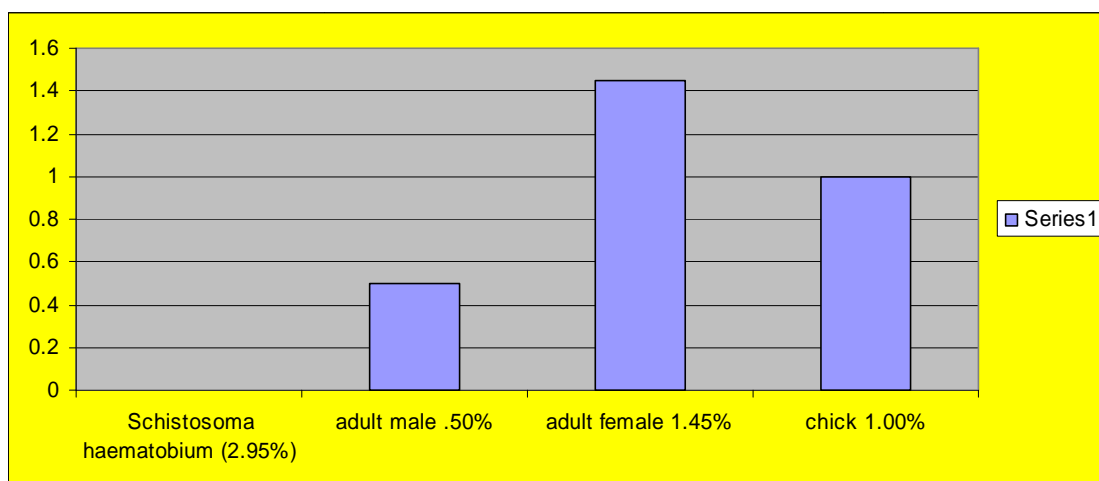
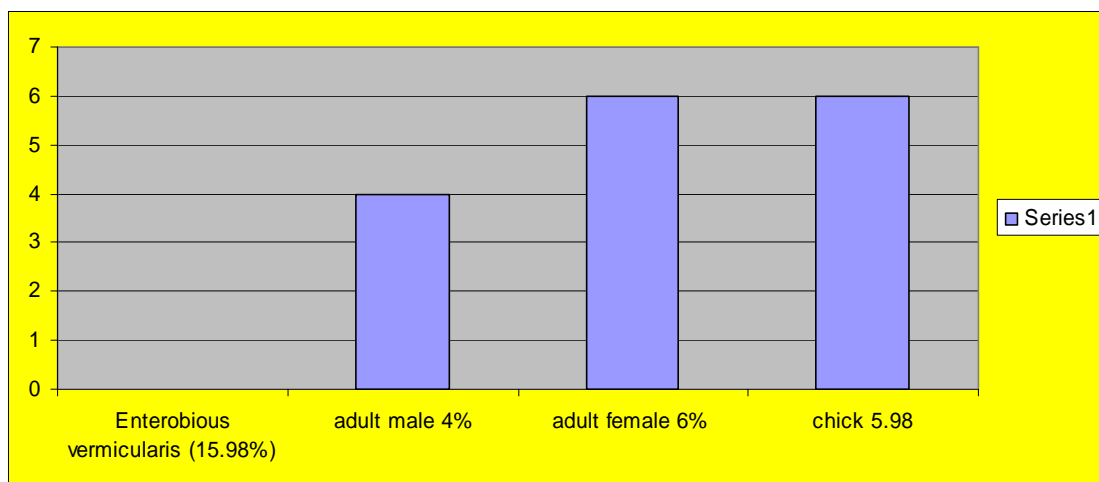
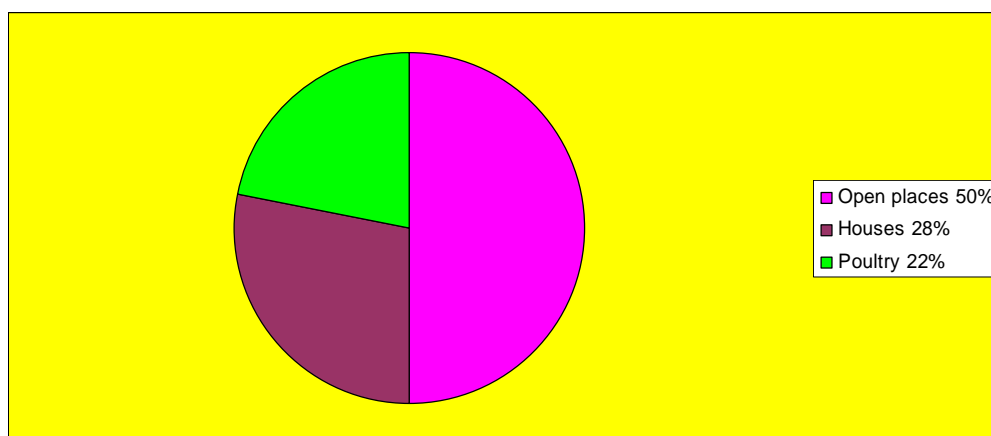


Fig. 2: parasite found rate in chickens form different locations of the study area at different stages



RESULT AND DISCUSSION:

The importance of chickens are the carriers of parasitic worms, cysts, or eggs was based on some reports about the presence of parasitic forms on or in chickens.(Greenberg,1973). According to this study it revealed that chickens play important role in transmitting parasitic diseases and transmitting them to those human and animals who are utilizing them as food and in Telangana region.

In this study might possibly be an indication that all these parasites can equally be transmitted by the different stages of chickens many reports in Telangana have shown these parasites to be common in different localities specially in those areas where personal hygiene is lacking. In addition the presence of *E.vermicularis* infestation indicates that the chickens had contact with infected patients which explained that their vectorial potential for parasitic diseases (Chaner al; 2004) the high occurrence of *E.histolytica* over other parasites observed in this study might probably be because of the resistance of conferred by the cyst wall which makes the cyst to survive from days to weeks in the external environment and probably be vectored by chickens. Similarly *A.lumbricoides*, *S. mansoni* and *haematobium* are the causative agents of human helminthiasis while *E.histolytica* causes amoebiasis since the report revealed that the presence of these pathogens form the exoskeleton of chickens in a developing environment like Telangana it



become imperative to urgently institute control measure on these birds through massive public health education on improving the existing standard of environmental sanitary conditions.

Fact is that the females and chick stages were significantly more vectorial than the males, because they move more in search of food compare to males and for sites to lay their eggs. They come and in contact with contaminated soil for searching of food for which they have to scratch which making them more vulnerable to be contaminated with pathogens.

According to this study it reveal that different developmental stage of chickens share equal potential in transmitting parasites of clinical important. Therefore control measures should target.

Aim of the note is that the vectorial potential significantly associated with the source of chickens in this study. The higher number of the chickens vectoring parasites observed in open places is understandable because chicken are accessible to open places where contamination with faecal matter is most likely then houses and poultry. So people have to be careful not to allow chickens accessibility to open places as they have the potential to vectors transmit parasites from this investigation it can be concluded that over 50% of the chickens population was contaminated after resting and contaminating the environment with infective matter carried on the body surface they can transmit the infection to community at the rate of 77.52%. the cyst of *E.histolytica* , ova of *A.lumbricoidea* and eggs of *S.mansoni* , *S.haematobium* and *E. vermiculares* were observed in the external body parts of the chickens. The discovery of *A. lumbricoidea* on the birds supported the supposition that chickens play a significant role in the epidermiology of soil transmitted helminthes (S.T.H) , which could carry and spread pathogens to other places. From human beings when they excrete its excretory material which is carrying the eggs of related parasites then these eggs get entered in to the soil and from here they will get cling to the body of chicken or infected chickens falls its dropping so along with its dropping eggs are also passed after a period of time in the environment become infective. New birds become infected by inadvertently eating these eggs while feeding drinking or scratching around their yard.

In round worms the life cycle is particularly short, being only 21days this means that if a chicken is wormed and swallowed as infective eggs the very next day in only three weeks that chickens will have mature roundworms in its bowel again to complete eradicate. Round worms



from a flock involves worming the birds every three weeks and each time following up with particularly through clean of the yard. Ongoing hygiene is important because any dropping passed prior to worming will contain worms eggs that have the potential to re infect the chickens. Often in a free range situation no matter how thoroughly one cleans., it is not possible to complete remove every piece of dropping and some infection occur in this situation regular worming is done not so much to eradicate any parasites but rather to keep them at a low level where they are not causing clinical diseases often in a yard basically clean worming every three months will provide adequate control. We have to take warm water in to which add baby shampoo and dip the chicken and remove. This is for poultry purpose.

Acknowledgement :

We are thankful to the resident of Telangana state for their understanding and support to conduct this research.

References :

- Soulsby. LJE Helminthes, Artropoda and protozoa of domesticated animals 7th edition. Philadddphia, pa, USA: Lea and febiger:1982.
- Benbrook.E . A. External parasites of poultry. In: Biester HE, schwart LH, editors, diseases of poultry. 5th edition, Ames, Iowa, State university press;1905. pp.925-962.
- Ikeme MM. Haemaphysalishoodihood(Warburton and Nuttal, 1909) on domestic chickens in eastenNigeria, Veterinary record. 1972;90(2,article 33).
- Eyrinnaya a VE.A.survey of the constrains in the poultry industry in Enugu state, Nigeria. Nuskka, Nigeria, University of Nigeria; 1993.
- Belomavu JA prevalence of infectious diseases of poultry in Anambra state for 1992.Nusukka, Nigeria ,university of Nigeria;1992.
- Aniekwe MC. Major diseses problems in small holder poultry production in anambra state. Farmers perception, Nusukka, Nigeria; Unversity of Nigeria;1993.
- 39 Ugwuwo. Incidence of poultry diseases Diagnosed in Nsukka from 1989-1993.Nusukka, Nigeria ,university of Nigeria;1994.



Fabiya JP incidence of Helminth parasites of the domestic fowl in the vom area of Benue- plateau state-Nigeria. Bulletin of Epizootic diseases of Africa...1972;2013: 229-234.

FAO(Food and agricultural organization of the united nations)Tech. Rep 274415. Rome, Italy; FAO, March 1987, Report on the expert consultation on rural poultry development in Asia, Dhaka ,Bangladesh.

Obiora F.C.A guide to poultry production in the tropics.1st edition, Enugu, Nigeria arena publisher 1992.

Transmission of poultry parasites by birds with special references to the “English” or house sparrows and chickens.WilliumlutherHogle, Bavaria, kan.

Montresor , A., Crompton ,D.W.T., Hall, A., Bundy, D.A.P . andSaviol, L. (1998). Guidelines for the evaluation of soil transmitted helminthiasis and schistosomiasis at community level. WHO/CDT/SIP/98.1

Bundy, D.A.P., Hall, A., Medley, G.F. and Savioli, L (1992).Evaluation measure to controle intestinal parasitic infection. World Health Statistic Quaterly, 45:168-79.

Chandler,A.C. and Read, C.P.(1962). Introduction to parasitology with special reference to the parasite of man.10th edition. New york: John Wiley and sons.

CheGhani, B.M., Oothuman, P., Hashim, B.B. and Rusli, B.I. (1993). Patterns of hookworms infection in traditional Malay villages with and without JOICFP Integrated project in peninsular Malaysia-1989. In yokogawa M, Editors. Collected papers on the controle of soil transmitted helminthiasis, Tokyo: APCO, 5: 14-21.

Cheesbrough,M. (1998). Medical laboratory Manual, For tropical countries. Vol 1, ELBS, Cambridge.Pp.323-431.

Greenberg, B.I (1973). Ecology, classification and Biotic association. New jersey: Princetonuniversity Press, Vol, 1.

Mott,K.E. (1989). The World Health Organization and the controleof intestinal helminthes . in Yokogawa M, Editors. Collected papers on the controle of soil transmitted helminthiasis, Tokyo: APCO, 4:189-200.

Sommani, S., Vivatanasesth, P., Harinasuta, C., Potha, U. and Thirachandra, S. (1983) . The controle of ascaris in slum community of Bankok.In :Yokogawa M, Editors. Collected papers on the controle of soil transmitted helminthiasis, Tokyo:APCO:290(35):260-266.

Yakubu, M and Singh, B.R.(2001). Erosional losses of soil and nutrients from dry land farm in Sokoto, Nigeria. Journal Agriculture and Environment, 1:147-155.