

Prevalence of Helminth Parasites in Indigenous Fowls of Zoba Anseba of Eritrea, North-East Africa

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Abstract

The prevalence of helminth parasites in indigenous fowls was investigated in Zoba Anseba, Eritrea. The rate of infection was as high as 52.43% in rectal swab examination and 63.00% in the slaughtered fowls. The helminth parasites recorded were: *Ascaridia galli* (70.58%), *Subulura* sp. (5.88%), *Heterakis* sp. (52.94%), *Tetrameres* sp. (11.76%), *Cheilospirura* sp. (5.88%), *Raillietina* sp. (82.35%) and *Amoebotaenia* sp. (11.76%). The infection rate between nematodes and cestodes was 92.59% and 59.25%, respectively. Mixed infection with two to three species was common. Cloacal swabs of 82 fowls collected were found positive with different types of ova. Out of which 22 were positive for *Ascaridia* (51.16%), 14 for *Heterakis* sp. (32.55%), 6 for *Tetrameres* sp. (13.95%) and 30 were positive for *Raillietina* sp. (69.76%).

Key Words: Indigenous Fowls, Parasites, Eritrea, Nematode, Cestode, Slaughtered fowl.

Introduction

Poultry diseases whether they are infectious, noninfectious or parasitic, cause tremendous economic loss to the poultry industry. The damage is caused through high mortality, drop in egg production, poor performance, and medication cost.

Parasitic diseases caused by helminth, arthropods and protozoa are reported in all most all species of domestic fowls. The incidence of parasitic infection in birds reared under indoor systems is very less because of the proper management. However, parasitic load of nematodes can go very high if managerial aspects are not well taken. Likewise, in free range system of poultry rearing, the importance of these parasites can not be ruled out. Majority of avian parasites are directly related with husbandry practices and need utmost attention.

In Eritrea at present only local breed is reared under free range system. Therefore, currently, poultry meat and eggs are produced from the traditional free-range system. The traditional poultry production system has a great importance as prime supplier of eggs and meat, and as source of income, especially, to the rural women (Asefaw, 2000).

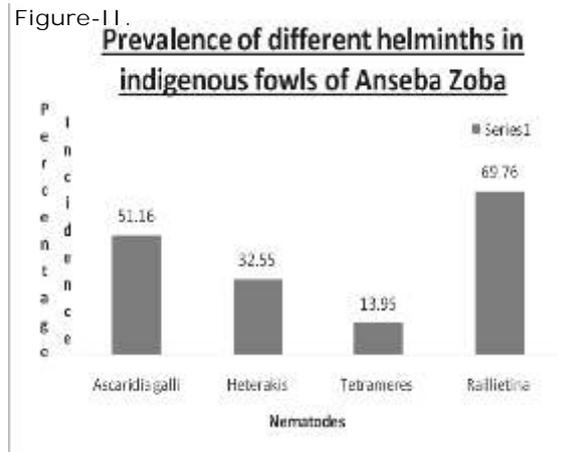
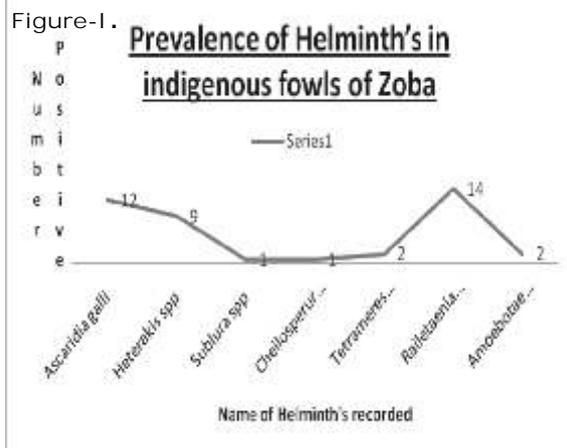
Therefore, the country depended on backyard traditional poultry production for meat and eggs. This

study was undertaken to identify the helminth parasites in indigenous birds at Zoba Anseba so that treatment strategy can be made accordingly.

Materials and Methods

Postmortem Examination: Twenty seven indigenous fowls of both sex and different age groups, reared under the free ranging system at Zoba Anseba were procured and examined for presence of parasites during 2009 and 2010. The birds were slaughtered and the digestive system was taken out and kept in lukewarm water in separate beakers organ-wise. All the organs were incised and contents mixed thoroughly with water. The parasites visible with naked eye were isolated and washed properly several times with normal saline. The thin and delicate parasites as well as cestode heads were separated under dissection microscope and washed properly. The parasites isolated were counted, grouped into different categories, and fixed in 5-10% hot formalin for whole mount. Further, they were put individually in clear lactophenol for identification. The confirmation of morphological features of helminthes collected during postmortem examination was done according to Yamaguti (1959) and Soulsby (1982).

Cloacal swab Examination: A total of 82 cloacal swabs were collected from indigenous fowls brought



for sale in different markets of Keren city of Zoba Anseba. The swabs were put individually in small glass tubes labeled with identification marks and date of collection. All the swabs were examined by different routine parasitological tests and identification as per Soulsby (1982) and Yamaguti(1959).

Results and Discussion

Postmortem Findings: Out of 27 indigenous fowls examined by postmortem examination, 17(63.00 %) were positive for various types of helminth parasites (Table-1 and Fig.I). On the basis of morphological characteristics of parasites, the various types of helminths viz. nematodes and cestodes were identified and infection was 92.59 and 59.25 percent, respectively. The rate of infection with *Raillietina sp.* was highest 14 (82.35%) followed by *Ascaridia galli* 12 (70.58%). The infection with *Subulura sp.* and *Cheilospertura sp.* were found 1 (5.88 %) and that of *Tetrameres sp.* as well as *Amoebotaenia sp.* 2 (11.76%) and *Heterakis* infection was recorded in 9 cases (52.94%).

Table-1. Location wise prevalence of helminths in indigenous fowls of Zoba Anseba

Name of Parasite	Number infected	Location
<i>Ascaridia galli</i>	12	Small Intestine
<i>Heterakis spp</i>	9	Caeca
<i>Subulura spp</i>	1	Caeca
<i>Cheilospertura spp</i>	1	Gizzard
<i>Tetrameres spp</i>	2	Proventriculus
<i>Raillietina spp</i>	14	Small Intestine
<i>Amoebotaenia spp</i>	2	Small Intestine

Cloacal swabs findings: Out of 82 rectal swabs examined, 43(52.43%) were found positive for various helminth parasites (Table-2 and Fig. II).

In cloacal swab examination, based on morphological characters of ova's, 22 were identified as *Ascaridia* (51.16%), 14 for *Heterakis* (32.55%), 6 for *Tetrameres* (13.95%) and 30 for *Raillietina* (69.76%).

Table-2. Prevalence of different helminthes in indigenous fowls of Anseba Zoba

No. of samples examined	No. of samples Positive	Parasitic Ova identified Number (Percentage)
82	43(52.43%)	<i>Ascaridia galli</i> 22 (51.16%) <i>Heterakis</i> 14 (32.55 %) <i>Tetrameres</i> 6 (13.95 %) <i>Raillietina</i> 30 (69.76 %)

Infection with two or more helminth parasites was seen in majority of the cases. Bali and Katra (1975), Basharat *et al* (1991) and Deb. P *et al* (1986) recorded 28, 74 and 26.78 % of helminth infection from the fowls reared in backyard system in Kashmir, Punjab and West Bengal, respectively. However, in the present study the rate of infection recorded was 63% in postmortem cases and 52.43% in rectal swab examination. The study in the country has been done for the first time, so results obtained can not be matched with any previous record. However, it is important to record that in the study area there is availability of intermediate hosts and free range reared birds remain vulnerable for infection with helminthes.

No trematode infection was recorded in the study. This may be due to lack of availability of stagnant ground water in the area.

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