

Burden of Gastrointestinal Helminths in Backyard Local Chickens in Selected Sites in East Shoa Zone, Oromia, Ethiopia

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Abstract

This study was conducted on the prevalence of gastrointestinal helminthes of 100 chickens raised under traditional management (back yard) system and originated from three-selected town in East Shoa of central Ethiopia, namely Bishoftu, Dukem and Modjo. The study indicated an overall prevalence of 94% parasitic infection in the three towns. Out of the total, 69%, and 73% of the examined chickens were harboring nematodes and cestodes respectively. The nematodes identified were *Ascaridia galli* (13%), *Heterakis gallinarum* (20%), *Heterakis isolonche* (4%), *Heterakis dispar* (12%), *Alodapa sucturia* (6%), *Subura brumpti* (5%), and *Aucaria hamulosa* (4%) and the cestodes were *Raillietina tetragona* (13%), *R. Echinobothridia* (34%), *R. Cesticillus* (15%), *Choenetenia infundibulum* (15%), *Hymenolepis continana* (12%) and *Hymenolepis carioca* (14%) and The present study revealed a high prevalence of helminthes infection/infestation in backyard chickens. Therefore, appropriate prevention and control methods are recommended.

Keywords: Gastrointestinal; Prevalence; Helminthes; Bishoftu; Modjo and Dukem; Ethiopia

Material and Methods

Study area The study was carried out from October 2016 to May 2017 in Bishoftu, Dukem and Modjo towns, East Shoa zone, Oromia, Ethiopia. Bishoftu is located 47 km south east of Addis Ababa at 9°N latitude, 40°E longitude and at an altitude of 1850 meters above sea level. Bishoftu experiences a bimodal pattern of rainfall with the long rainy season extending from June to September and a short rainy season from March to May and dry season from October to February with an average annual rainfall of 800 mm. The mean annual minimum and maximum temperature is 12.3°C and 27.7°C, respectively, with an overall average of 18.7°C. The mean relative humidity is 61.3%. Dukem is located 37 km south east of Addis Ababa at 8°48'N latitude 38°54'E longitude and an elevation of 2100 meters above sea level. Dukem experiences a bimodal pattern of rainfall with the long rainy season extending from June to September and a short rainy season from March to May and dry season from October to February with an average annual rainfall of 800 mm. Lume is

bordered on the south by the Koka reservoir, on the west by Ada'a Chukala, on the northwest by Gimbichu, on the north by the Afar Region and on the east by Adama. Mojo is the capital of the district; other towns and cities include Ejere, Ejersa and Koka. Most of this District altitude ranges from 1500 to 2300 meters above sea level (m.a.s.l), except for a small portion in the northern part, which is over 2300 m.a.s.l in altitude. The mean monthly temperature of the area ranges from 22°C to 34°C. A survey of the land in this district shows that 54.3% is arable or cultivable, 3% pasture, 2% forest, and the remaining 20% is considered degraded or otherwise unusable. Vegetables are an important cash crop of the area.

Study population and design Cross-sectional study was conducted on one hundred apparently healthy local indigenous chickens bought from the local market of each of the three towns. 40, 30 and 30, respectively chickens were purchased from Bishoftu, Dukem and Modjo town. The chickens were categorized into two age groups, namely: growers (2 to 8 months) and adult (aged >8 months) according to Magwisha et al. [18] and 43 were male and 57 were female chickens. During purchasing exotic and hybrid chickens were excluded based on information obtained from the owners and physical observation of the chickens. For parasitological and post-mortem examination, the chickens were transported to Addis Ababa University, College of Veterinary Medicine and Agriculture, Parasitology and Pathology laboratory.

Sample size determination and sampling method The sample size was determined based on the formula recommended by Thrusfield for simple random sampling method. In this formula, the expected prevalence of 97.9% which was reported by Abebe et al. [12] in and around Addis Ababa and absolute precision of 95% were considered. **Conclusion and Recommendations**

The present study indicated that cestode and nematode were highly significant helminth infections of local chicken in the study towns. According to the result, the highest prevalent cestode species were *Raillietina echinobothrida*, *Choanotaenia infundibulum* and *R. cesticillus* while *Ascaridia galli*, *Heterakis gallinarum* and *H. dispar* were among the commonly encountered nematode species. Study area, sex and age had no significant influence on the prevalence of poultry helminthes. E-mail: yoseph.cherinet@aau.edu.et