

Original article

Prevalence of intestinal helminthes in domestic chicken of Tha Pho Sub-District,
Phitsanulok province.

Thatcha Yimthin¹, Thanakorn Watcharasupat¹, Rapee Tummeepuk¹, Waranan Yotpanya¹,
Wiraya Eamsaard¹, Chamaiporn Fukruksa¹ and Apichat Vitta^{2*}

¹Medical Science Program, ²Department of Microbiology and Parasitology,
Faculty of Medical Science, Naresuan University, Phitsanulok, Thailand

Abstract Helminthiasis was considered to be an important problem of domestic chickens due to ill-health and loss of productivity. In Phitsanulok, chickens play an important role in the provision of animal protein for population. The objective of this study was to determine the prevalence of intestinal helminthes in domestic chickens of Tha Pho sub-district, Phitsanulok province. Collection of intestines of chickens from Ban Jung Nang Market was performed during November 2010 to February 2011. The intestine was opened by scissors and observed under stereo microscope in order to find intestinal parasites. Then, the collected intestinal parasites were stained with carmine. The overall infection rate of intestinal helminthes in domestic chickens was 90.4% (66/73). This comprised of nematodes, *Ascaridia galli* (47.9%) and *Heterakis gallinarum* (43.8%). The cestodes was *Raillietina* spp. (83.6%) which seemed to be the most common helminthes while *Hymenolepis* spp. (2.7%) was less and trematode was *Echinostoma revolutum* (17.8%). This work strongly suggested that helminthiasis is high prevalence in domestic chickens in the studied area. Therefore, the appropriate control strategies need to be devised. In addition, the finding of *Raillietina* spp. and *Echinostoma revolutum* which is a parasitic zoonosis should be aware in the study area. **Chiang Mai Veterinary Journal 2012; 10(1): 3 - 9**

Keywords: Prevalence, Intestinal helminthes, Domestic chickens, Phitsanulok

Address request for reprints: Apichat Vitta, Department of Microbiology & Parasitology, Faculty of Medical Science, Naresuan University, Phitsanulok 65000, Thailand; E-mail: apichatv@nu.ac.th

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Introduction

Parasitic infections are common in domestic chickens because of the absence of biosecurity under free range conditions and their scavenging habits⁽¹⁻³⁾. The infections are mostly subclinical, causing production losses and, more rarely, mortality. A lot of losses in poultry have been linked to disease causing agents such as viruses, bacteria and parasites⁽⁴⁾. Prevalence studies have shown that almost 100% of rural chickens are infected with helminth parasites^(3,5,6). The domestic chicken feeds on a wide range of food substances. This ranged from grains, fruits to insects which may harbour infective stages of parasites thereby predisposing them to parasites infection particularly gastro-intestinal parasites^(7,8). The most prevalent helminth species in these studies were *Ascaridia galli*, *Raillietina* spp., *Tetrameres* spp. and *Heterakis* spp.⁽⁷⁻⁹⁾

In Phitsanulok, the available few data was strongly suggested that the prevalence of intestinal parasitic infections of chickens need to be studied. Therefore, with the linked of previous mentions, the purpose of this study was to determine the prevalence of intestinal helminthes in domestic chickens of Tha Pho sub-district, Phitsanulok province. This basic knowledge will be useful for control of parasitic infection in poultry.

Methodology

The intestinal helminthes were investigated from 73 chicken intestines that were processed. They were purchased from Ban Jung Nang market in Tha Pho sub-district, Phitsanulok province, between November 2010 and February 2011. All intestines were cleaned with tap water and opened with scissors. Then, they were observed and collected under stereomicroscope for intestinal helminthes. The collected worms were prepared for light microscope examination. The worms were fixed in 10 % formalin or Alcohol-Formalin-Acetic acid (AFA). Then, they were stained with carmine, dehydrated in alcohol gradients, mounted in Permount. The slides were then observed under the light microscope for identified genus and species of intestinal helminthes. Photographs of parasites were taken.

Result

A total of 66 (90.4%) of the 73 samples were found to be positive for intestinal helminthes. Table 1 shows the prevalence of intestinal helminthes of domestic chickens. Different types of intestinal helminthes (Figure 1) were detected in chickens including nematodes, cestodes and trematodes. This comprised *Ascaridia galli* (47.9%), *Heterakis gallinarum* (43.8%), *Raillietina* spp. (83.6%) *Hymenolepis* spp.(2.7%) and *Echinostoma revolutum* (17.8%).

Table 1 Prevalence of intestinal helminthes in domestic chickens of Tha Pho sub-district, Phitsanulok province.

Parasites	No. of Positive/No. of examined (%)	Median of No. of worms in each sample (min-max)
Nematodes		
<i>Ascaridia galli</i>	35/73 (47.9)	2 (1-6)
<i>Heterakis gallinarum</i>	32/73 (43.8)	1 (1-62)
Cestodes		
<i>Raillietina spp.</i>	61/73 (83.6)	Not determine
<i>Hymenolepis spp.</i>	2/73 (2.7)	Not determine
Trematode		
<i>Echinostoma revolutum</i>	13/73 (17.80)	12 (1-185)

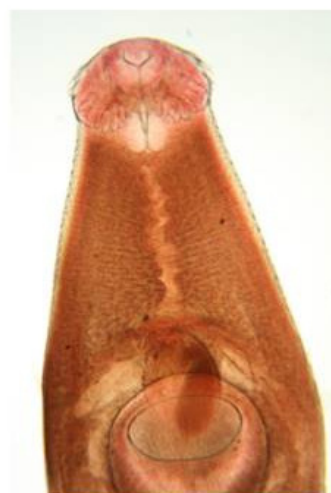


Figure 1 Parasites collected from intestinal chickens: adult of *Ascaridia galli* (A), Adult of *Heterakis gallinarum* (B), Scolex of *Raillietina spp.* (C), and adult of *Echinostoma revolutum* (D).

Discussion and Conclusion

Local chickens satisfy their nutrient requirement by roaming from place to place and they usually seek their feed in the superficial layers of the soil which is often contaminated with living organisms of all kinds, including various insects or earth worm that serve as paratenic or intermediate hosts for helminth parasites that infest poultry⁽⁸⁾.

The present study demonstrated that high prevalence (90.4%) of intestinal parasites in domestic chickens of Tha Pho sub-district, Phitsanulok. These findings agreed with the previous reports from central and north-eastern part of Thailand⁽¹⁰⁻¹²⁾. They reported that the high infected rate of intestinal parasite from native chickens was *Raillietina* spp. (66.8%) and *Ascaridia galli* (21.5%). In the present study, *Raillietina* spp. (83.6%) was observed with highly infected in native chickens from studied area.

Helminth parasites of poultry are commonly divided into three main groups; nematodes, cestodes and trematodes. Nematodes consist of the most important group of helminth parasites of poultry both in number of species and the extent of damage they cause; the main genera include *Capillaria*, *Heterakis*, and *Ascaridia*⁽¹³⁾. *Ascaridia galli* has been incriminated as the most common and most important parasite of poultry⁽¹⁴⁻¹⁶⁾. The

cestodes of significant importance are of the two genera *Raillietina* and *Hymenolepis*^(7,13). These parasites caused stunted growth and low productivity which may be concerned to destroy in the intestinal mucosa⁽¹⁷⁾. In addition, the trematode, *Echinostoma revolutum* was found in the native chickens in the present study. This worm is considered to be the parasitic zoonosis. The study demonstrated that the chickens in Tha Pho sub-district, Phitsanulok served as the reservoir hosts. Human can be infected by eating metacercariae contaminated in raw or improperly cooked meal made from fresh water snails. Awareness is suggested to prevent the transmission of this parasite in the studied area.

It can be concluded that high proportion of domestic chickens in Tha Pho subdistrict, Phitsanulok harbored intestinal parasites including *Ascaridia galli*, *Heterakis gallinarum*, *Raillietina* spp., *Hymenolepis* spp. and *Echinostoma revolutum*. Therefore, more attention regarding appropriate prevention and control measures with good management system should be put in place.

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