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ISSN (Online) : 2455 - 3662
SJIF Impact Factor :3.395 (Morocco)

EPRA International Journal of
**Multidisciplinary
Research**

Volume: 2 Issue: 9 September 2016



Published By :
EPRA Journals

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BIOLOGICAL AND ENVIRONMENTAL CONTROL OF ASCARIDIA GALLI- A MENACE TO THE POULTRY

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ABSTRACT

Poultry plays a very important role for people especially in a country like India where it is a means of providing food, generating employment, providing raw materials to certain industries etc. As majority of people in India are non-vegetarians, the proteins from poultry constitute a major part of their diet. But off late the poultry in India has been affected by the presence of many intestinal parasites due to which the poultry industry has suffered a major set back. One of the parasites is *Ascaridia galli*. It is the intestinal parasite of poultry especially the domestic fowl. It is not only the chicken but also their eggs that are being affected by the parasite. Though there are many antihelminthic drugs being given now a days but these antihelminthic drugs cause many side effects in the poultry. Due to high cost of these drugs and also lack of knowledge, these drugs are out of reach of small scale poultry farmers. The present paper lays emphasis on the control of *Ascaridia* infection by natural and biological methods rather than the use of antihelminthic drugs.

KEYWORDS: *Ascaridia galli*, poultry, nematode, chicken, mentha longifolia, fermented feed, earthworms.

INTRODUCTION

Ascaridia galli is a nematode that belongs to phylum nematyhelminthes. It inhabits the small intestine of birds especially chicken and other poultry. It is worldwide in distribution. It is the most pathogenic parasite to domestic fowl, *Gallus domesticus*. The adult forms of the parasites are not

infective. The infective forms are the larvae of *Ascaridia*. Transmission of eggs occurs through contaminated feed and water. The parasite has caused much loss to the poultry industry as the larva not only infects the poultry birds but is also responsible for their death.

Fig1. Ascaridia galli in the intestine of chicken



OBJECTIVE

The main objective of the paper is to emphasize the importance of Biological and natural control of *Ascaridia galli* infection

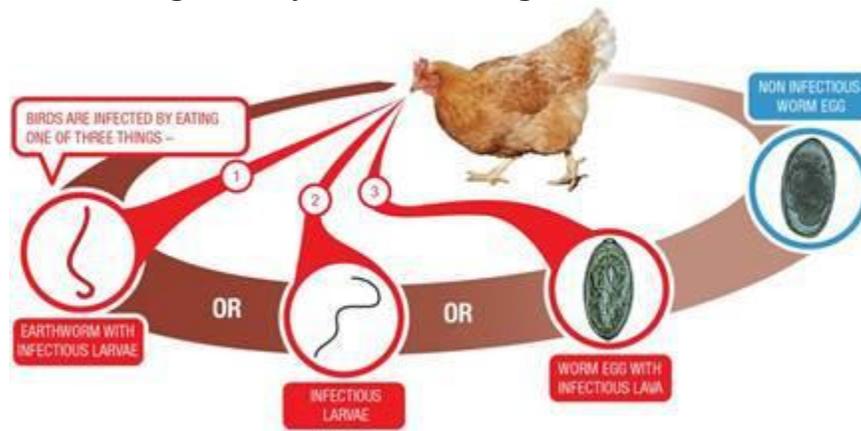
LIFE CYCLE OF ASCARIDIA GALLI

Ascaridia worms have direct life cycle. The adult worms live in the small intestine of birds. Adult female worms in the small intestine pass eggs with the feces. Once in the environment infective larvae develop inside the eggs in about 12 days by 33°C, but usually slower at lower temperatures. Such eggs can remain infective in the birds' litter for one year and longer. They do not develop at temperatures below

12°C, but may survive slight frost. Earthworms can ingest large amounts of infective eggs and act as mechanical vectors.

Birds become infected after eating infective eggs, either directly with contaminated food or water, or indirectly through infected earthworms. Ingested eggs release the larvae in the gut's lumen where they molt and remain for about 10 days. Subsequently they penetrate into the gut's lining where they spend 1 to 7 weeks and molt again. This is the infective stage in the life cycle of *Ascaridia*. Afterwards they return to the gut's lumen where they complete development to adult worms and the females start producing eggs.

Fig 2. Life cycle of Ascaridia galli



PATHOGENICITY

The nematode infects fowl of all ages, but the greatest degree of damage is often found in young birds under 12 weeks of age. Heavy infection is the major cause of weight depression and reduced egg production in poultry industry. In severe infections, intestinal blockage can occur. Unthriftiness, drooping of the wings, bleaching of the head. It also causes loss of blood, retarded growth and greatly increased mortality. In heavy infections, adult worms may move up the oviduct and be found in hens' eggs, and

sometimes they are also found in the birds' feces. The birds may even die in extreme cases.

GENERAL ANTIHELMINTHIC TREATMENT

Piperazine is the most common antihelmintic drug used against *Ascaridia galli*. Piperazine is administered to chickens in the feed or water. However, piperazine is quite ineffective for young chickens, while tetramisole is 89-100% effective for chicken of different ages. Drugs such as Albendazole, Levamisole and Febendazole are

also very effective. But the antihelminthic drugs have to be administered very carefully. If the dosage of the drug is less it will not be efficient in killing the worms and if the dosage is more than required it may affect the bird adversely

BIOLOGICAL CONTROL

Instead of giving antihelminthic drugs to the poultry for *Ascaridia galli* leaves of *Mentha longifolia* can be used in feed as they have antioxidant properties.

Fermented foods are a very healthy option for the poultry. They maintain a healthy digestive tract and improve the immunity of the birds.

The chicken can be given organic feed instead of the artificial feed available commercially.

ENVIRONMENTAL CONTROL

As the infection is spread by the earthworms , the birds should not be allowed to feed on earthworms.

The area should be cleared of earthworms as they are the vector of *Ascaridia galli*

The poultry should be kept in a clean and hygienic place. Care should be taken to keep the poultry as dry as possible. The areas where the poultry has been kept under hygienic conditions have tremendously shown a decrease in *Ascaridia* infection . This is because the nematode eggs and larvae are completely dependent on moisture for further development.

CONCLUSION

Efforts should be made to educate small scale poultry farmers about the importance of natural and biological control of *Ascaridia galli*. Emphasis should be laid on maintaining hygiene and cleanliness in the poultry farm to prevent the spread of infection.

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