Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India

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**Article ID:** WMC00777
**Article Type:** Research articles
**Submitted on:** 28-Sep-2010, 10:14:11 AM GMT   **Published on:** 28-Sep-2010, 07:09:03 PM GMT
**Article URL:** http://www.webmedcentral.com/article_view/777
**Subject Categories:** PARASITOLOGY
**Keywords:** Gastrointestinal Parasites, Goat, Meghalaya

**How to cite the article:** Bandyopadhyay S, Devi P, Bera A, Bandyopadhyay S, Bhattacharya D. Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India. WebmedCentral PARASITOLOGY 2010;1(9):WMC00777

**WebmedCentral Peer Reviewed:** Yes
Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India

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Abstract

A study was conducted regarding the level of burden of gastrointestinal Parasites in goat slaughtered for human consumption in Shillong, Meghalaya during June,2001 to June,2006. A total of 250 gastrointestinal tract were examined for adult parasites. The intensity of parasitic infection was recorded maximum in rainy season and least during winter. The parasite recorded was O. venulosum, O. columbianum, Haemonchus contortus, Bunostomum trigonocephalum, Trichuris species, Trichostrongylus colubriformis, Moniezia expansa, Moniezia benedeni, Gaigeria pachysalis, Amphistom species. One of the interesting finding was the prevalence of Haemonchus contortus in reticulum in 76.8% cases.

Introduction

Gastrointestinal Parasite is one of the major and wide spread problem in rearing of goats in this region due to high rainfall and humidity prevailing in this region which reduces the productivity (Akerejola et al,1979) and also reduces weight gain and other production loss. This problem could be addressed by adopting better manage mental practices and proper control measures during monsoon and post monsoon period. Studies on the incidence of gastrointestinal parasites in goats have been reported from different states of India (Bali ,1973, Mishra et al.,1974, Hirani et al. 1999). But information on the prevalence of gastrointestinal parasite from Meghalaya is scanty, although limited data were reported by Yadav and Tandon (1989). The present investigation has therefore been undertaken to know the prevalence of gastrointestinal parasites in goat slaughtered for human consumption. Another interesting finding tempted us to undertake the present study was to confirm the abnormal site of predilection of Haemonchus contortus parasite.

As we know that Haemonchus contortus is known as large stomach worm or abomaal worm of goat, sheep, cattle and many other wild animal throughout the world and its unique site of predilection is in the abomasum (Soulsby,1982). But in our study most of the parasites were isolated from the reticulum of goat.

Methods

The study was conducted in and around of Shillong, the capital city of Meghalaya. A total of 250 gastrointestinal tract were collected from local unorganized abattoirs of different parts of Shillong during June, 2001 to June, 2006. Since almost all the population of these areas are meat eater, therefore goat meat is one of the most popular meat among the people. Each and every part of the gastrointestinal tract was examined according to the method given by Hansen and Perry(1993). After isolation of the parasites from GI tract, were identified under microscope according to their morphological features (Soulsby ,1982).

Results & Discussion

Out of 250 GI Tract examined 231 (92.4%) were found to be positive for single or mixed infection. The maximum incidence was of Haemonchus contortus from reticulum with a percentage of 76.80% and the least being Amphistomum species (16.8%) (Table1).

The prevalence of gastrointestinal parasite observed in the study area was in general agreement with the findings of Yadav and Tandon (1989) who also reported prevalence of Haemonchus contortus, Bunostomum trigonocephalum. Oesophagostomum columbianum,and Trichuris ovis.

Though the site of predilaction of Haemonchus contortus was the abomasum , but in our study most of the Haemonchus was isolated from reticulum(76.8%) rather than abomasum (60.28%) of goats (Fig 5). Morphological studies of these two parasites isolated from different organ revealed no significant changes in any of the morphological characteristics.

This changes of site of predilection of these parasites may be either due to new strain of the parasites or this may also due to the effect of some locally available herbs having some partial anthelminthic effect. These parasites needs to be studied further for confirmation of the changes of site of predilation.

From the study it has been found that a inverse relationship between the percent of prevalence of Trichuris spp and all other Gastrointestinal parasites...
isolated from intestine of goat (viz. Oesophagostomum spp., Trichostrongylus spp, Gaigaria spp and Bunostomum spp) (Fig.2). This inverse relationship is having direct correlation with the rainfall pattern of the region. During the year 2003-2004 the average rainfall of the region (110.66 mm) was low as compared to 2002-2003 (149.88 mm) and 2004-2005 (165.89 mm). But as the Prevalence of Trichuris spp was inversely related with rainfall, it showed the inverse trend with rainfall pattern of this region (Fig.3).

The prevalence of Trematodes and cestode infection showed direct relationship along with rainfall but vary in intensity of infection between Moniezia spp and Amphistome infection in goat (Fig. 4).

References

Illustrations

Illustration 1

Table 1: Gastro Intestinal parasites in Goat in Meghalaya. From 2001 to 2006

<table>
<thead>
<tr>
<th>Parasite revealed</th>
<th>Total no of GI tract examined</th>
<th>Total %</th>
<th>Parasite revealed</th>
<th>Total no.found</th>
<th>% +ve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haemonchus contortus (R)*</td>
<td>250</td>
<td>92.4%</td>
<td>Haemonchus contortus (A)**</td>
<td>231</td>
<td>92.4%</td>
</tr>
<tr>
<td>Oesophagostomum venulosum</td>
<td></td>
<td></td>
<td>Oesophagostomum venulosum</td>
<td>192</td>
<td>76.80</td>
</tr>
<tr>
<td>Oesophagostomum colombianum</td>
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<td></td>
<td>Oesophagostomum colombianum</td>
<td>157</td>
<td>60.28</td>
</tr>
<tr>
<td>Trichuris species</td>
<td></td>
<td></td>
<td>Trichuris species</td>
<td>177</td>
<td>70.80</td>
</tr>
<tr>
<td>Trichostrongylus colubriformis</td>
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<td>Trichostrongylus colubriformis</td>
<td>177</td>
<td>70.80</td>
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<tr>
<td>Monezia expansa</td>
<td></td>
<td></td>
<td>Monezia expansa</td>
<td>163</td>
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<tr>
<td>Moniezia benedenai</td>
<td></td>
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<td>Moniezia benedenai</td>
<td>167</td>
<td>66.80</td>
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<tr>
<td>Gaigaria pachysalis</td>
<td></td>
<td></td>
<td>Gaigaria pachysalis</td>
<td>126</td>
<td>50.40</td>
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<tr>
<td>Bunostomum trigonocephalum</td>
<td></td>
<td></td>
<td>Bunostomum trigonocephalum</td>
<td>100</td>
<td>40.00</td>
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<tr>
<td>Amphistom species</td>
<td></td>
<td></td>
<td>Amphistom species</td>
<td>95</td>
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<tr>
<td>-- H. contortus isolated from Reticulum</td>
<td></td>
<td></td>
<td>-- H. contortus isolated from Reticulum</td>
<td>74</td>
<td>29.60</td>
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<tr>
<td>-- H. contortus isolated from Abomesum</td>
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<td></td>
<td>-- H. contortus isolated from Abomesum</td>
<td>56</td>
<td>22.40</td>
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<td>-- H. contortus isolated from Abomesum</td>
<td></td>
<td></td>
<td>-- H. contortus isolated from Abomesum</td>
<td>42</td>
<td>16.80</td>
</tr>
</tbody>
</table>

*-- H. contortus isolated from Reticulum. **H. contortus isolated from Abomesum.
Illustration 2

Fig: 1. Trend of Haemonchus infection in Goat during 2001-2006 in Meghalaya
Illustration 3

Fig: 2. Prevalence of Gastrointestinal Parasites isolated from GI tract of goat during 2001-2006 in Meghalaya.
Illustration 4

Fig:3. Trend of Trichuris sp. infection in relation to rainfall isolated from GI tract of goat during 2001-2006 in Meghalaya
Illustration 5

Fig:4. Prevalence of Trematode and Cestode infection isolated from GI tract of goat during 2001-2006 in Meghalaya
Illustration 6

Fig 5. Haemonchus sp. recorded from the reticulum of goat.
Reviews

Review 1

**Review Title:** Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India

Posted by Dr. Natthawut - Kaewpitoon on 16 Aug 2012 05:15:57 AM GMT

**What are the main claims of the paper and how important are they?:**
This paper article is a very interest to Veterinary Medical doctors including Parasitologist

Yes, there are. The research paper gives some new information which may of interest to the readers

Yes, they are

Yes, I found that the paper showed the method, results and discussion, support thier research

**If a protocol is provided, for example for a randomized controlled trial, are there any important deviations from it? If so, have the authors explained adequately why the deviations occurred?**
Yes, the author may add some information according below, study design "Cross-sectional descriptive study"

Yes, however the author may add the study design mainly "Cross-sectional descriptive study" and how to collect the data, calculate the sample size

Yes, the author may add the study design mainly "Cross-sectional descriptive study" and how to collect the data, calculate the sample size.

Yes, the author may add the study design mainly "Cross-sectional descriptive study" and how to collect the data, calculate the sample size.

**Rating:** 7

**Comment:**
NA

**Competing interests:** No

**Invited by the author to make a review on this article?** : No

**Have you previously published on this or a similar topic?:** Yes

**References:**

**How to cite:** Anonymous. Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India[Review of the article 'Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India ' by ].WebmedCentral 1970;3(8):WMCRW002182
Review 2

Review Title: Prevalance of gastrointestinal parasites in Goats in Shillong, Meghalaya, India

Posted by Dr. Arunava Pattanayak on 27 Nov 2010 06:24:54 AM GMT

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<tr>
<td>1</td>
<td>Is the subject of the article within the scope of the subject category?</td>
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<td>2</td>
<td>Are the interpretations / conclusions sound and justified by the data?</td>
<td>Yes</td>
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<tr>
<td>3</td>
<td>Is this a new and original contribution?</td>
<td>Yes</td>
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<tr>
<td>4</td>
<td>Does this paper exemplify an awareness of other research on the topic?</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Are structure and length satisfactory?</td>
<td>Yes</td>
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<tr>
<td>6</td>
<td>Can you suggest brief additions or amendments or an introductory statement that will increase the value of this paper for an international audience?</td>
<td>No</td>
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<td>7</td>
<td>Can you suggest any reductions in the paper, or deletions of parts?</td>
<td>No</td>
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<td>8</td>
<td>Is the quality of the diction satisfactory?</td>
<td>Yes</td>
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<td>9</td>
<td>Are the illustrations and tables necessary and acceptable?</td>
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<td>10</td>
<td>Are the references adequate and are they all necessary?</td>
<td>Yes</td>
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<tr>
<td>11</td>
<td>Are the keywords and abstract or summary informative?</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Rating: 7

Comment:
The research paper gives some new information which may of interest to average readers

Competing interests: No

Invited by the author to make a review on this article? : No

Have you previously published on this or a similar topic?: Yes

Experience and credentials in the specific area of science:
25 years

How to cite: Pattanayak A, Prevalance of gastrointestinal parasites in Goats in Shillong, Meghalaya, India[Review of the article 'Prevalence of Gastrointestinal Parasite in Goats in Shillong, Meghalaya, India ' by ].WebmedCentral 1970;1(11):WMCRW00178
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