

Infestations With Helminth Parasites In Cattle And Buffaloes

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Abstract

The study's goal is to evaluate the prevalence of helminth parasite infestations in cattle and buffaloes in the institute's immediate area, particularly at the Urlabari Agriculture Campus in Morang, Nepal. It is an empirical study carried out using a diagnostic strategy. For the purpose of obtaining faecal samples from cattle and buffaloes to determine the presence of helminthic parasites, a field visit to the neighbourhood was conducted. Out of 200 faecal samples from cattle and buffaloes that were collected directly per-rectally and evaluated using the sedimentation method in a laboratory for veterinary diagnostic and disease investigation, 43% were determined to be positive and 57% to be negative. Out of 86 positive cases, the liver fluke infestation was shown to be more prevalent in 36 cases.

Keywords:

Fecal, Fluke Infestation, Magnesium, Zinc, Sulphate, Sedimentation Method, Flotation

Introduction

Eggs, larvae, or cysts are produced by parasites that live in the biliary, urinary, and digestive systems, and they leave the host's body through the faeces or urine. Occasionally, especially when the host has enteritis, even adult helminth parasites may be found in the faeces. The majority of the time, parasitic worm eggs or larvae from the respiratory system are aspirated into the pharynx and ingested. These parasites also show up in faeces. Three types of helminth parasites are used to identify helminth parasitic infections, particularly in cattle and buffaloes, near the institute: cestodes (tape worms), trematodes (flukes), and nematodes (round-worms). Therefore, the medications used to treat these parasites are referred to as anticestodal, antitrematodal, and antinematodal medications.

Anthelmintics are the names of the medications that are used to kill and eradicate helminth parasitic worms. The most prevalent

parasite infections affecting both humans and animals are helminthic infestations. Emaciation, loss of appetite, decreased milk production in breastfeeding animals, anaemia, foul-smelling faeces, coughing, and occasionally diarrhoea or enteritis are all signs and symptoms of helminth parasite infestation in animals. Feces must be collected in this situation and analysed for the presence of parasite ova or larva. The main goal of this study is to identify helminth parasitic infestations, particularly in cattle and buffaloes, in the area surrounding the institute.

According to Margaret (1994), the sample should be fresh. Examination of FecesCollection of Fecal Sample and its StorageEquipments:• Fecal box• Wooden spatulaProcedure Any muck, dirt, or other foreign objects should be absent. Only the centre section of the soil should be sampled if it is to be taken. Picking up the sample requires using a wooden spatula, which may be thrown away after usage.

When working with large animals, the hand is inserted into the rectum after being cleaned with soap and water, and 10 mg of material is taken. The substance should be gathered from canines and felines by inserting a rubbery index finger into the rectum. The wax cardboard cups with lids or any other suitable container, such as ice cream cups, should be used to collect the faeces; however, absorbent materials, such as newspaper, should not be used. Storage of SamplesIf the material is to be examined after some time has passed since collection, then it should be kept in a refrigerator. The sample can be kept in 10% formalin, with the exception of cases where lungworms are suspected.

Examination of Fecal SamplesFecal examination is the process of observing and identifying the parasitic ova or larva in faeces using a microscope (microscopic examination) or with our unaided eyes (gross examination).EquipmentMicroscope, toothpick or matchstick, glass slide, cover slip, beaker, centrifuge, floatation solution, centrifuge tube, funnel, test tubes and gauze, among other things.

Methods of Fecal Examination

- A macro- and gross examination

The following data are analysed from the faecal samples using microscopic examination and gross/microscopic examination.

- The faeces' texture and form: hard, normal, or loose
- Composition and colour
- Adult parasites present
- The presence of parasite segments
- There's blood present
- Two types of microscopic examination are used depending on the presence of mucus.
- Qualitative analysis
- Direct Smear Method for Quantitative Examination

Agricultural Science and Food Technology

- Place one on a fresh slide.
- Using a smooth glass rod, tooth pick, or match stick, stir ingredients evenly.
- Cover it with a cover slip.

Note: If no egg is present, the sample should not be deemed negative.

- Examine under a low power microscope and make sure the entire mass has been studied. For confirmation, the floatation method should be employed.

Sedimentation Method Sedimentation is used to extract the eggs of flukes, as well as some other tape worms and nematodes, whose eggs do not readily float in standard floatation solutions.

- A clean mortar is used to collect a sample of faeces weighing 5–10g.
- A pestle is used to adequately triturate it after adding 30–40 ml of water to it.
- It is retained after being filtrated with a sieve.
- Sedimentation is permitted for 20–30 minutes.
- Glass that contains supernatant liquid is discarded.

On a clean slide, 1-2 droplets of sediment are applied to create a smear, which is then studied under a low power microscope.

Add 1 drop of 0.1% Methylene blue if required. **Floatation Method** This method relies on the idea that the parasitic eggs should float to gravity. For the floatation technique, the following solutions are used:

- Heather's solution, or saturated sugar solution Sodium nitrate and sodium chloride solutions that are saturated Magnesium oxide (41%);
- Centrifugal floatation (33%), sugar floatation, and zinc sulphate
- Place a little (1 to 2 grammes) amount of excrement in a glass beaker.
- With the aid of a glass rod or wooden spatula, thoroughly combine it by swirling while adding a tiny amount of water to create a watery suspension.

The second container is filled with this watery faeces suspension by pouring it down the funnel onto the gauze piece.

The substance left on the piece of gauze is checked for tape worm fragments and other foreign objects before being discarded. One cleans the funnel.

- Fill a centrifuge with this sample in a sleeve until it is 1/3 full.
- Fill the tube's upper end (brim) with Sheather's sugar solution.

(B). Simple Floatation :

- Place a tiny amount of the faecal sample in a glass beaker and, using a glass rod, thoroughly combine it with the sugar solution.
- Fill the test tube to the top with the mixture after straining it through a funnel with a piece of gauze. The tube's solution shouldn't leak

out.

- Permit the test tube to stand vertically for 30 minutes.
- At this point, you can either quickly remove some material by pressing the plunger straight down on the top or by covering it with a slide.
- Look at it with a low power microscope.

Floatation via Centrifugation This procedure works well, but the sample should be checked as soon as possible because the solution has a propensity to crystallise. Prepare a saturated aqueous solution of sodium nitrate.

- Put 1-2 grammes of sample in a wax cup and thoroughly combine it with a saturated sodium nitrate solution. The saturated solution to faeces ratio is almost 1:5.
 - Place it in the centrifuge tube 1/4 inch or less from the top.
 - Continue as you would for centrifugal sugar floatation.
- Chloride of sodium Floatation** The method is identical to that used for sodium nitrate floatation. The same way that previous floatation methods are evaluated, the faeces are combined directly with salt solution. Zinc and magnesium sulphate floatation were carried out in a same manner. **Method of Quantitative Concentration** To get more, this is done.

There are various methods for calculating the number of nematode eggs in one gramme of faeces. **McMaster Methods**

In a beaker, weigh 2 grammes of faeces. Add 28 cc of water and stir carefully.

- Add 1 ml of the mixture and 1 ml of the Sheather's sugar solution to a test tube, and stir.
- With the mixture still in motion, gently transfer some of it with a pipette into a McMaster counting chamber. ensuring that the cell's marked space is filled.
- To allow the eggs to rise to the top, let the dish stand for a few minutes.

Count the eggs in the designated location while holding the cell up to the microscope.

To calculate the number of eggs per gramme of excrement, multiply the count by 200. **Stoll's Approach** A tube with a 45 ml capacity is filled with 3 grammes of excrement. Water or deci-normal caustic soda solution should be used to fill the mark. Shake the tube to create a uniform suspension after sealing it with a rubber stopper. On a slide, 0.15 ml of the combined filtrate suspension is placed, and the entire area is viewed with a low power microscope.

Conclusion:

With liver fluke dominance, helminth parasite infestation is a problem for cattle and buffaloes. The recommendations listed below have been mentioned.

- We have advised farmers who have tested positive for helminth

Agricultural Science and Food Technology

parasite infestation to rapidly treat their animals with appropriate and effective anthelmintics like Nilzan (oxyclozanade and levamisole).

- Periodic dousing of the animals with adequate anthelmintics (every four months) is advised.
- It is advised to have a faecal examination every single month.
- Correcting nutritional status in accordance with needs and feeding animals an abundance of crops that are rich in nutrients are important.
- Avoid grazing livestock in swampy places due to the high risk of liver fluke infestation and avoid providing too much moisture for fodder crops.

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