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Proceeding Paper

Gastrointestinal Parasite Infestation of the Dromedary Camel (*Camelus dromedarius*) in Southern Algeria †

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Abstract: This study aims to evaluate the prevalence and identification of gastrointestinal parasites in fecal samples of dromedary camels (*Camelus dromedarius*) in Algeria based on microscopic examination. A total of 46 fresh fecal samples were collected in the southern Algerian towns of Adrar, Tindouf, Ourgla, and Ain Salah, and nine samples from camel farms in Constantine. Samples were examined with the flotation technique. Results showed an infestation rate of dromedaries of 32.6% (15/46), with seven different gastrointestinal species: 25.4% protozoa (*Balantidium coli*, *Eimeria dromederi*), 16.3% nematodes (*Nematodirus* spp., *Trichuris* spp., others strongles), and 3.6% cestodes (*Moniezia* spp.). Dromedaries are more infested with protozoa than with nematodes or cestodes ($p < 0.05$). The type of sex has no significant influence on the rate of parasitic infestation. The Sahraoui breed (70%) appears more infested compared to the Tergui breed (31.42%) ($p < 0.05$). Dromedaries originating from the Ouargla region (73.68%) are the most infested compared to those originating from Adrar (18.18%), Ain Salah (10%), and Tindouf (33.33%) ($p < 0.05$).

Keywords: dromedary camels; gastrointestinal parasites; southern Algeria; flotation technique

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1. Introduction

The camel, commonly called the ship of the desert in Arabic, is an important animal. They live in desert areas due to their ability to withstand very harsh conditions (high temperature and drought), to provide milk and meat, to be used as a means of transport [1,2], and to digest poor forage compared to other domestic ruminants [3]. In Algeria, the camel farming sector (354,465 camel heads) has a substantial contribution to make toward covering the growing gap in protein and dairy products. Several studies have reported the occurrence of different gastrointestinal parasites in camels in different parts of the world [4,5]. However, few studies have examined these diseases in Algeria. This animal is frequently infested by gastrointestinal parasites, which decreases productivity [6,7]. Among the many pathologies caused by these parasites, helminthiasis represents an important internal parasitosis affecting camels. The aim of this study is to evaluate the infestation by gastrointestinal parasites in local and transhumant dromedary camels in southern Algeria (Tindouf, Adrar, Ouergla, and Ain Salah) and Constantine.

2. Materials and Methods

Nine faecal samples of transhumant dromedaries from the Neili population were collected in Constantine in 2019 and treated with the flotation technique before being examined under a microscope. Forty-six faecal samples from the local Tergui and Sahraoui camel populations were collected in March 2022 in four regions of southern Algeria (Ourgla, Adrar, Tindouf, and Ain Salah), stored in cold storage, and transported to the laboratory. The samples were treated using the flotation technique and examined under a microscope. Each fecal sample was examined by direct smear and the simple flotation method using a saturated salt solution [8]. Age, sex, and population information were collected.

An ANOVA test was used for statistical analysis. The difference was considered significant at $p < 0.05$.

3. Results and Discussion

Seven different gastrointestinal parasite species were identified in camels: four nematodes, one cestode, and two protozoa. Dromedaries are more infested with protozoa than with nematodes or cestodes ($p < 0.05$). The type of sex has no significant influence on the rate of parasitic infestation. The Sahraoui breed (70%) appears more infested compared to the Tergui breed (31.42%) ($p < 0.05$). Dromedaries originating from the Ouargla region (73.68%) are the most infested compared to those originating from Adrar (18.18%), Ain Salah (10%), and Tindouf (33.33%) ($p < 0.05$).

The prevalence rate of gastrointestinal parasites found in our study, *Eimeria dromaderi,* is present in all southern regions in local camels with a prevalence rate of 10.5–45%, which is higher than 6.7% [9] and 5.7% [10], and we can see that the animals of the Ouergla region are the most infested compared with other regions.

Balantidium coli was recorded in Ouergla in three samples (15.7%), higher than the 6.7% found in Egypt by Ref. [9].

The prevalence of *Nématodirus* spp. was 55% in the transhumant camels of Constantine and 10% in local camels in Ouergla, compared with results obtained by Ref. [11] in Algeria with a prevalence of 23%. *Strongyloides* spp. were detected in one camel sample (5.2%), almost similar to the(4%) obtained by Ref. [11] in Algeria. *Trichuris* spp. prevalence of 10% was higher than the 1% and 2.23% obtained by Refs. [11] and [10], respectively. A cestode infestation (*Moniezia* egg) was observed in two camels examined with a rate 10% higher than the 7.5% obtained in Egypt by Ref. [9]. The results obtained with the flotation technique show a low infestation with protozoa (*Eimeria dromaderi* and *Balantidium coli*) and a weak infestation with *Trichuris* spp., which was observed only in Ourgla.

4. Conclusions

The camel gastrointestinal parasites identified in this study show similarities to other ruminant infestations by various species of helminths and protozoa. The gastrointestinal parasites of camels identified in this study testify that there is similarity with the infestation of other ruminants by different species of helminths and protozoa. Other interesting lines of research can focus on the life cycle and the economic impact of parasites.

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