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Selfmedicative Behaviour in Gastrointestinal Parasite Infected Goats: Shift in Preferences for Tanniferous Fodder Plants

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Abstract

Gastrointestinal nematode infections are a worldwide major cause of economic losses and a thread to pasture-based livestock due to their adverse effects on animal health and productivity. Especially regarding the trichostron-gyles, the most prevalent nematodes in ruminants, the excessive usage of conventional anthelmintic drugs over the last decades has led to an emergence of resistant nematode populations, and decreased the efficacy of available anthelmintics. This underlines the relevance of a paradigm shift towards a more sustainable and unconventional approach to control nematode infections.

This study evaluated a possible change in feed preferences of trichostrongyle-infected Boer goats and hypothesised that infected goats increase their intake of tannin-containing fodder plants.

Feed preferences of eighteen juvenile male Boer goats (3–4 months) were evaluated over a period of 12 weeks. The individually fed animals were assigned to three treatment groups: I) Non-infected + feed choice II) Infected + feed choice, and III) Infected without feed choice. At the beginning of the trial, all goats were free of trichostrongyles. After four weeks, group II) and III) were experimentally infected with third-stage trichostrongyle larvae representing the local species spectruM. Group I and II animals were offered a free choice cafeteria trial for 30 min prior to the usual daily feeding time. Four fodder plants (pelleted leaves of sainfoin, willow, walnut, blackberry) of varying tannin contents (low to high) and tannin-free hay pellets were simultaneously offered. The position of the pellets in the trough was randomised each day.

During the cafeteria trial plant preferences were recorded by video surveillance and amounts of ingested pellets were measured. In addition, blood parameters, saliva composition and feces were analysed on a weekly basis in order to evaluate the course of infection and potential shifts in feed preferences due to changes in taste perception.

The cafeteria trial revealed a shift from tannin-free (hay) and low tannin-containing feed (sainfoin) to plants with higher tannin-contents (walnut, blackberry) with proceeding trichostrongyle infection.

Keywords: Anthelmintic drug agents, condensed tannins, goats, nematodes, selfmedicative behaviour

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